



Mashamoquet Brook Watershed Summary

Mashamoquet Brook, White Brook, Sap Tree Run, Abington Brook

WATERSHED DESCRIPTION AND MAPS

The Mashamoquet Brook watershed covers an area of approximately 18,028 acres in northeast Connecticut (Figure 1). The watershed is located primarily in the Town of Pomfret, with portions of the watershed in Eastford, Woodstock and Brooklyn, in Windham County, CT.

The Mashamoquet Brook watershed includes five segments impaired for recreation due to elevated bacteria levels. These segments were assessed by Connecticut Department of Energy and Environmental Protection (CT DEEP) and included in the CT 2010 303(d) list of impaired waterbodies. An excerpt of the Integrated Water Quality Report is included in Table 1 (CT DEEP, 2010).

Mashamoquet Brook begins at the Taft Pond outlet dam (upstream of the Taft Pond Road crossing), and flows south through a mix of forestland, agricultural and residential land, across three roadways before crossing Route 44 into Mashamoquet State Park. The brook includes a diversion to an engineered swimming pond within the park, referred to as By Pass Pond. Since the 1970's, flow from the brook has been diverted when heavy rain is forecasted during the swimming season by placing a board across the diversion in an effort to prevent bacteria in the brook from flowing into the pond. The board is removed and flow to the pond is restored when stream flow reverts to normal (ECCD, 2011). From the By Pass Pond, the brook flows east to the Quinebaug River on the Putnam/Killingly town line.

All five impaired segments within the Mashamoquet Brook watershed have a water quality classification of A. Designated uses include habitat for fish and other aquatic life and wildlife, recreation, and industrial and agricultural water supply.

The upstream segment of Mashamoquet Brook (CT3710-00_02) consists of 4.36 miles of the brook in Pomfret, from the Taft Pond outlet dam downstream to the confluence with Wolf Den Brook (upstream of the Route 101 crossing) (Figure 2). This segment of Mashamoquet

Impaired Segment Facts

Impaired Segment Name:

1. Mashamoquet Brook (CT3710-00_01)
2. Mashamoquet Brook (CT3710-00_02)
3. White Brook (CT3710-18_01)
4. Sap Tree Run (CT3710-13_01)
5. Abington Brook (CT3710-11_01)

Municipalities: Pomfret, Brooklyn

Impaired Segment Lengths

(miles): 3710-00_01 (3.06 miles), 3710-00_02 (4.36 miles), CT3710-18_01 (3.07 miles), CT3710-13_01 (1.09 miles), 3710-11_01 (1.75 miles)

Water Quality Classification:
Class A

Designated Use Impairment:
Recreation

Sub-regional Basin Name and Code: Mashamoquet Brook, 3710

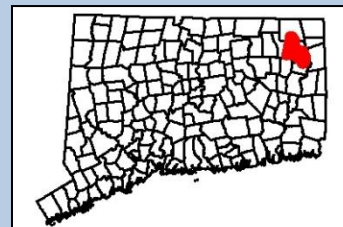
Regional Basin: Quinebaug

Major Basin: Thames

Watershed Area (acres): 18,028

MS4 Applicable? No

Figure 1: Watershed location in Connecticut



Brook is the only segment with a designated beach. Therefore, the specific recreation impairment is for designated swimming and other water contact related activities.

Table 1: Impaired segments from the Connecticut 2010 Integrated Water Quality Report

Waterbody ID	Waterbody Name	Location	Miles	Aquatic Life	Recreation	Fish Consumption
CT3710-00_01	Mashamoquet Brook-01	From mouth at confluence with Quinebaug River (parallel to Route 101 on north side), US to confluence with Wolf Den Brook (US of Route 101 crossing), Pomfret.	3.06	FULL	NOT	FULL
CT3710-00_02	Mashamoquet Brook-02	From confluence with Wolf Den Brook (just US of Route 101 crossing), US to Taft Pond outlet dam (US of Taft Pond Road crossing), Pomfret. Includes diversion to swimming pond in Mashamoquet State Park.	4.36	FULL	NOT	FULL
CT3710-18_01	White Brook (Pomfret/Brooklyn)-01	Mouth at confluence with Mashamoquet Brook just DS of Route 101 crossing (close to confluence with Quinebaug River), Pomfret, US to confluence with unnamed tributary just US of Darby Road crossing, Brooklyn.	3.07	U	NOT	U
CT3710-13_01	Sap Tree Run (Pomfret)-01	Mouth at confluence with Mashamoquet Brook, just US of Wolf Den Road crossing, US past Route 44 crossing to HW in wooded area east of Blossom Drive, Pomfret.	1.09	U	NOT	U
CT3710-11_01	Abington Brook (Pomfret)-01	Mouth at confluence with Mashamoquet Brook, between Route 97 and Mashamoquet Brook crossing of Covell Road, US to confluence with unnamed tributary, just US of 2nd Route 44 crossing (DS of Abington Pond), Pomfret.	1.75	U	NOT	U

Shaded cells indicate impaired segment addressed in this TMDL

FULL = Designated Use Fully Supported

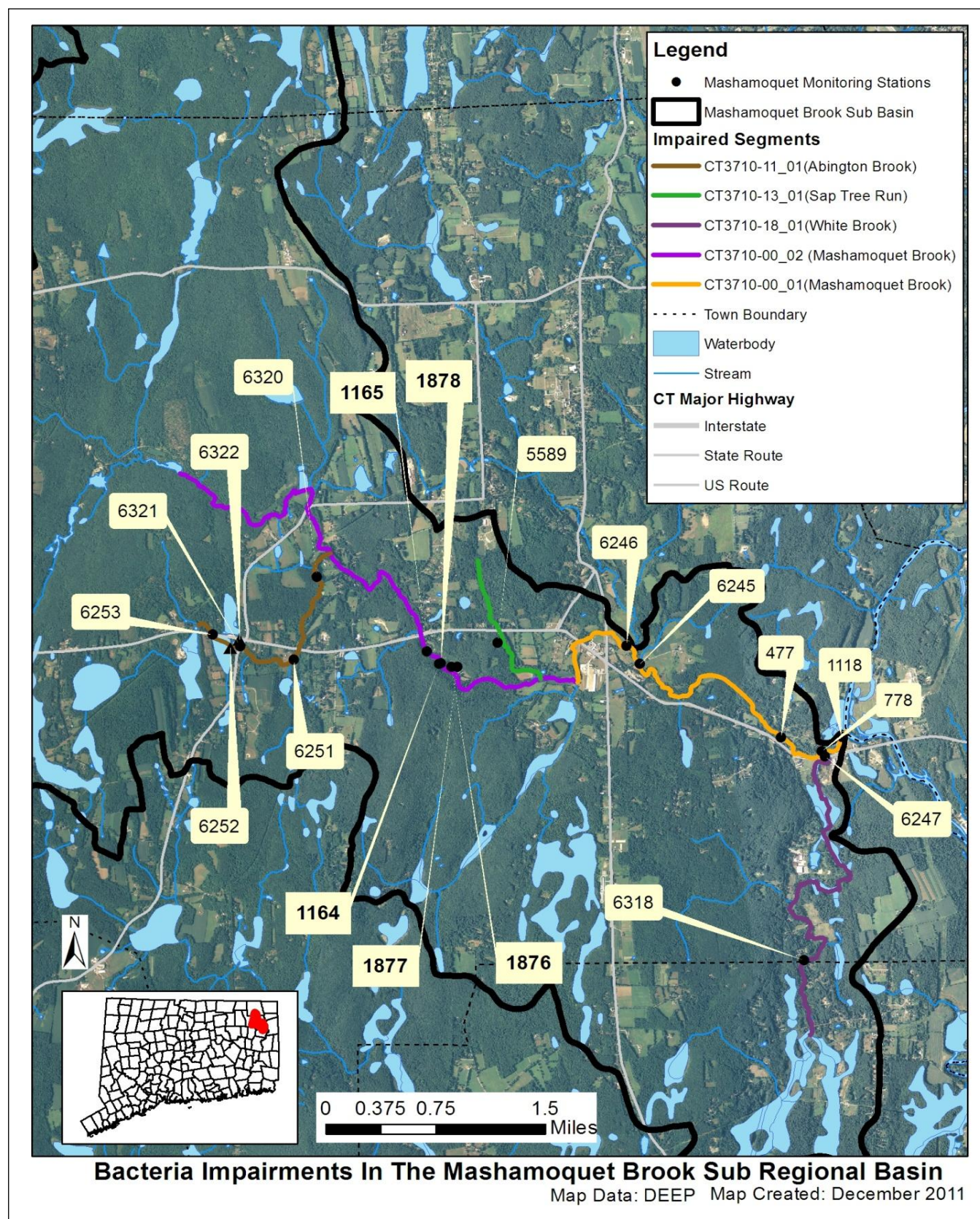
NOT = Designated Use Not Supported

U = Unassessed

The specific impairment for the downstream segment of Mashamoquet Brook (3710-00_01) is for non-designated swimming and other water contact related activities. This segment of the brook is 3.06 miles long, beginning at the confluence with Wolf Den Brook, south of the Route 101 crossing in Pomfret. The brook flows north for a short stretch through a heavily developed area which includes the Pomfret Community School, the Pomfret DOT Garage and several commercial, residential and agricultural land uses and then south-east to the confluence with the Quinebaug River.

The specific impairment for the three tributaries that flow into Mashamoquet Brook is for non-designated swimming and other water contact related activities. This includes Abington Brook (3710-11_01) which flows out of Abington Pond near the Pomfret Town Garage (Figure 2). The brook flows east through forested areas for 1.75 miles, crossing Route 44 and Route 97, and then north under Cheney Rd. before flowing into Mashamoquet Brook. Sap Tree Run (3710-13_01) begins east of Blossom Drive in Pomfret, and flows 1.09 miles, crossing Route 44 to the confluence of Mashamoquet Brook near Wolf Den Road. White Brook (CT3710-18_01) begins south of the Darby Road crossing in Brooklyn, and flows north for 3.07 miles through a mix of forested and developed land and a large wetland complex. The brook crosses Route 101 before flowing into the lower segment of Mashamoquet Brook near the confluence with the Quinebaug River.

Figure 2: GIS map featuring general information of the Mashamoquet Brook watershed at the sub-regional level, showing the impaired segments



Land Use

Existing land use can affect the water quality of waterbodies within a watershed (USEPA, 2011c). Natural processes, such as soil infiltration of stormwater and plant uptake of water and nutrients, can occur in undeveloped portions of the watershed. As impervious surfaces (such as rooftops, roads, and sidewalks) increase within the watershed landscape from commercial, residential, and industrial development, the amount of stormwater runoff to waterbodies also increases. These waterbodies are negatively affected as increased pollutants from nutrients and bacteria from failing and insufficient septic systems, oil and grease from automobiles, and sediment from construction activities become entrained in this runoff. Agricultural land use activities, such as fertilizer application and manure from livestock, can also increase pollutants in nearby waterbodies (USEPA, 2011c).

As shown in Figures 3 and 4, the Mashamoquet Brook watershed consists of 67% forest, 14.7% agriculture, 9.5% urban, and 8.8% water land uses. The watershed is characterized primarily by mixed deciduous forest including large uninterrupted blocks of forest (>500 acres) (ECCD, 2011). Conservation land in the watershed includes the 900 acre Mashamoquet State Park, and the Natchaug State Forest in addition to land trusts, preserves and nature sanctuaries (Figure 4). The largest area of agricultural land is located in the central portion of the watershed adjacent to the northern main stem impaired segment of the brook (Mashamoquet Brook Segment 2), as well as along the Abington Brook and the northern portion of the lower main stem, downstream of Sap Tree Run (Figure 4). There are two active dairy farms in the Town of Pomfret (ECCD, 2011). Urban development is located along roadways, with scattered commercial development and manufacturing scattered throughout the watershed. The most concentrated areas of urban development are located where the upper and lower main stem segments of Mashamoquet Brook meet in Pomfret.

Figure 3: Land use within the Mashamoquet Brook watershed

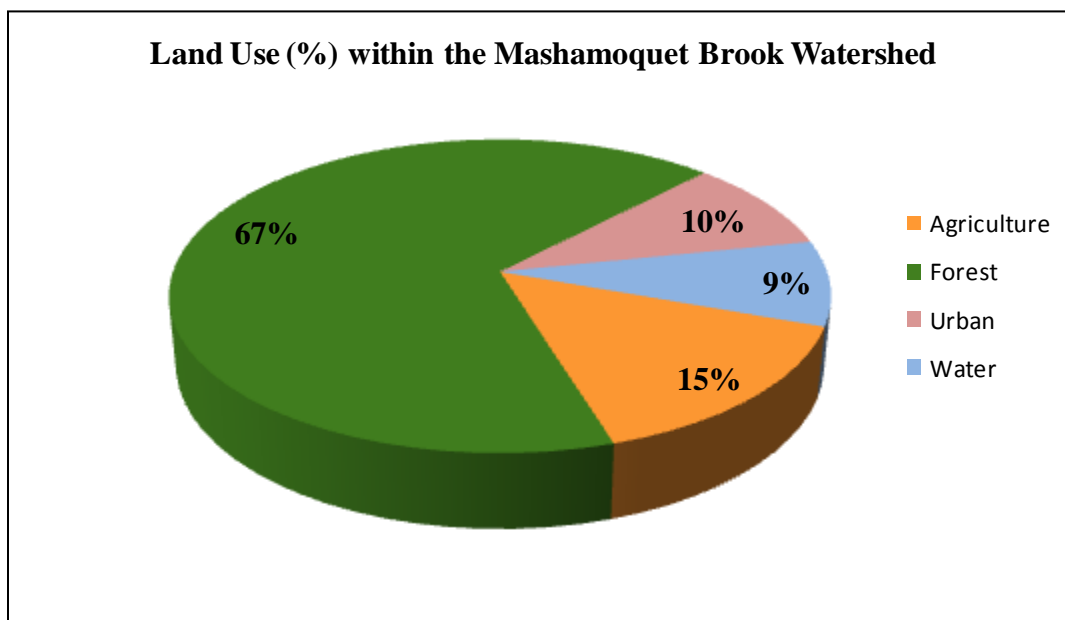
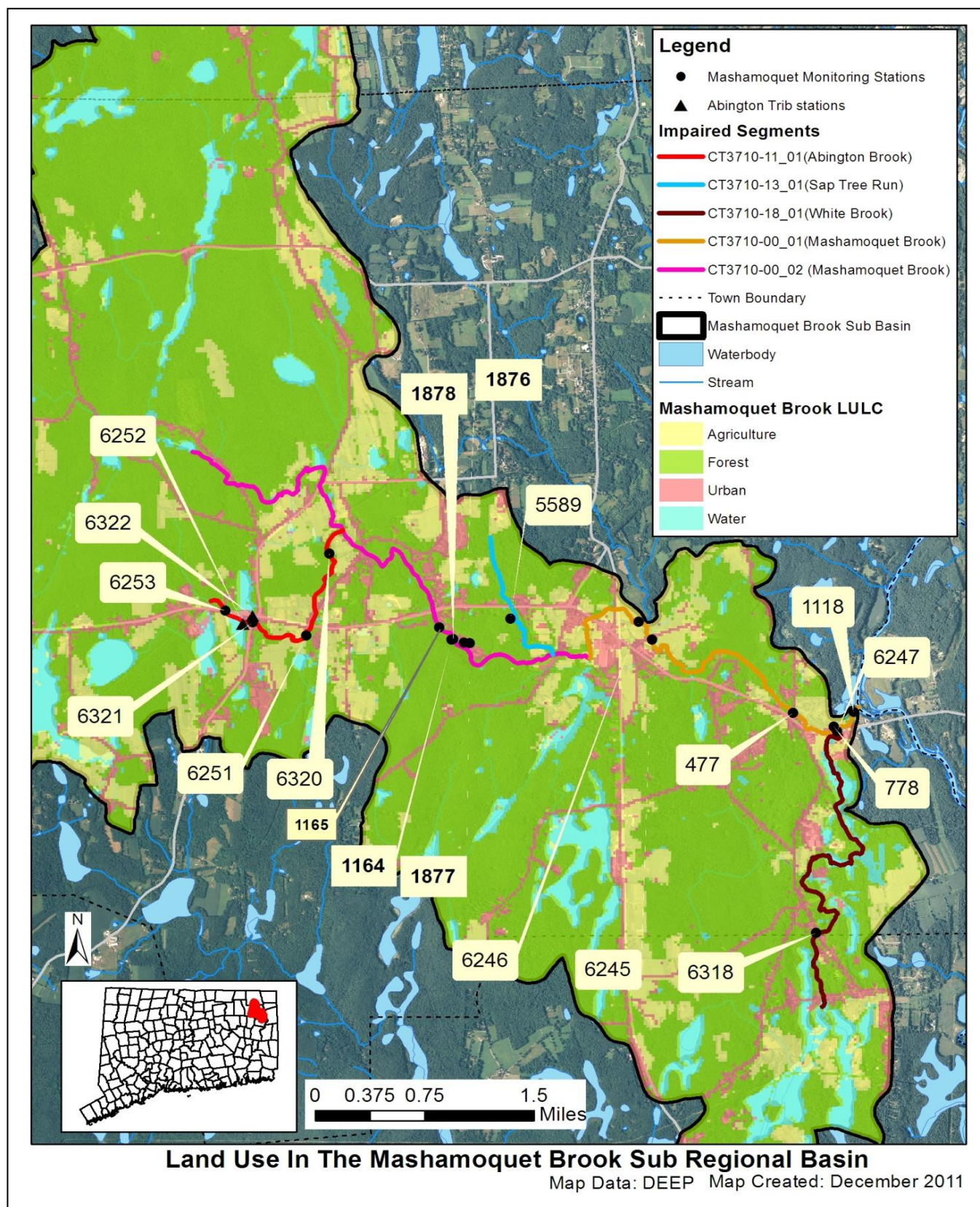


Figure 4: GIS map featuring land use for the Mashamoquet Brook watershed at the sub-regional level



WHY IS A TMDL NEEDED?

E. coli is the indicator bacteria used for comparison with the CT State criteria in the CT Water Quality Standards (WQS) (CTDEEP, 2011). All data results are from CT DEEP, USGS, Bureau of Aquaculture, or volunteer monitoring efforts at stations located on the impaired segments.

Table 2: Sampling station location description for the impaired segments in the Mashamoquet Brook watershed

Waterbody ID	Waterbody Name	Station	Station Description	Municipality	Latitude	Longitude
CT3710-00_01	Mashamoquet Brook	1118	At mouth of brook	Pomfret	41.84996	-71.927877
CT3710-00_01	Mashamoquet Brook	477	Downstream of Wright's Crossing Road near Mill Road	Pomfret	41.84994	-71.9359
CT3710-00_01	Mashamoquet Brook	778	Route 101	Pomfret	41.84994	-71.935927
CT3710-00_01	Mashamoquet Brook	6245	Bosworth Road	Pomfret	41.8577	-71.954576
CT3710-00_01	Mashamoquet Brook	6246	Wappaquia Brook on Baffin Sanctuary	Pomfret	41.85959	-71.956321
CT3710-00_02	Mashamoquet Brook diversion Pond	1877	Lifeguard Chair(s)	Pomfret	41.857522	-71.978761
CT3710-00_02	Mashamoquet Brook diversion Pond	1876	Lifeguard Chair(s)	Pomfret	41.857556	-71.979550
CT3710-00_02	Mashamoquet Brook	1878	Diversion to swimming pond	Pomfret	41.857947	-71.980919
CT3710-00_02	Mashamoquet Brook	1164	Route 44 in State Park	Pomfret	41.857900	-71.981167
CT3710-00_02	Mashamoquet Brook	1165	50 meters DS of small dam in state park	Pomfret	41.859167	-71.982778
CT3710-18_01	White Brook	6247	Route 101	Pomfret	41.84795	-71.930094
CT3710-18_01	White Brook	6318	Searles Road Crossing at Town Line	Pomfret	41.82691	-71.933157
CT3710-13_01	Sap Tree Run	5589	25 Meters downstream route 44	Pomfret	41.86	-71.973339
CT3710-11_01	Abington Brook	6323	Abington Pond Dam outfall	Pomfret	41.86125	-72.013407
CT3710-11_01	Abington Brook	6251	Route 44 at end of Krazy Road	Pomfret	41.85845	-72.000404

Table 2: Sampling station location description for the impaired segments in the Mashamoquet Brook watershed (continued)

Waterbody ID	Waterbody Name	Station	Station Description	Municipality	Latitude	Longitude
CT3710-11_01	Abington Brook	6321	Route 97	Pomfret	41.85987	-72.007506
CT3710-11_01	Abington Brook	6253	route 44 at Abington Cemetery	Pomfret	41.86112	-72.011137

Mashamoquet Brook (CT3710-00_01) is a Class A freshwater stream (Figure 5). Its applicable designated uses are habitat for fish and other aquatic life and wildlife, recreation, potential drinking water supply, navigation, and industrial and agricultural water supply. Water quality analyses were conducted using data from five sampling locations between 1999-2010 (Table 2). The water quality criteria for *E. coli*, along with bacteria sampling results for these stations are presented in Table 9. The annual geometric mean was calculated for Station 1118 (2010) and exceeded the WQS for *E. coli*. The single sample values at this station also exceeded the WQS for *E. coli* between two and ten times each year.

Weather station data for Mashamoquet Brook was taken from Hartford, CT because the local weather station was missing data. The wet/dry analysis revealed several bacteria exceedances on both wet and dry weather days. To aid in identifying possible bacteria sources, the geometric mean was also calculated for wet-weather and dry-weather sampling days (Table 9). The geometric mean during wet and dry-weather exceeded the WQS for *E. coli* at Station 1878.

Mashamoquet Brook (CT3710-00_02) is also a Class A freshwater stream (Figure 5). Its applicable designated uses are habitat for fish and other aquatic life and wildlife, recreation, potential drinking water supply, navigation, and industrial and agricultural water supply. The specific impairment for this reach is recreation for designated swimming and other contact water-related activities due to the diversion of the brook to an engineered swimming pond within the park, referred to as By Pass Pond at Mashamoquet State Park. Water quality analyses were conducted using data from five sampling locations between 1998-2011 (Table 2). The water quality criteria for *E. coli*, along with bacteria sampling results for these stations are presented in Table 10. The annual geometric mean was calculated for Station 1878 (2003-2011) and exceeded the WQS for *E. coli* for all years. Single sample values at this station also exceeded the WQS for *E. coli* between two and ten times each year. The wet/dry analysis revealed several bacteria exceedances on both wet and dry weather days.

To aid in identifying possible bacteria sources, the geometric mean was also calculated for wet-weather and dry-weather sampling days for Mashamoquet Brook's upstream segment (Table 10). The geometric mean during wet and dry-weather exceeded the WQS for *E. coli* at Station 1878.

White Brook (CT3710-18_01) is also a Class A freshwater stream (Figure 5). Its applicable designated uses are habitat for fish and other aquatic life and wildlife, recreation, potential drinking water supply, navigation, and industrial and agricultural water supply. Water quality analyses were conducted using data from two sampling locations between 2010-2011 (Table 2). The water quality criteria for *E. coli*, along with bacteria sampling results for these stations are presented in Table 11. The annual geometric mean was calculated for Station 6247 (2011) and exceeded the WQS for *E. coli*. Single sample values at this station also exceeded the WQS for *E. coli* on multiple occasions each year as well as at Station 6318. The wet/dry analysis revealed bacteria exceedances on both wet and dry weather days.

To aid in identifying possible bacteria sources, the geometric mean was also calculated for wet-weather and dry-weather sampling days for White Brook (Table 11). The geometric mean during wet and dry-weather exceeded the WQS for *E. coli* at Station 6247 and 6318.

Sap Tree Run (CT3710-13_01) is also a Class A freshwater stream (Figure 5). Its applicable designated uses are habitat for fish and other aquatic life and wildlife, recreation, potential drinking water supply, navigation, and industrial and agricultural water supply. Water quality analyses were conducted using data from one sampling location in 2010 (Table 2). The water quality criteria for *E. coli*, along with bacteria sampling results for this station are presented in Table 12. The annual geometric mean was calculated for Station 5589 (2010) and exceeded the WQS for *E. coli*. Single sample values at this station also exceeded the WQS for *E. coli* twice in 2010. The wet/dry analysis revealed bacteria exceedances on both wet and dry weather days.

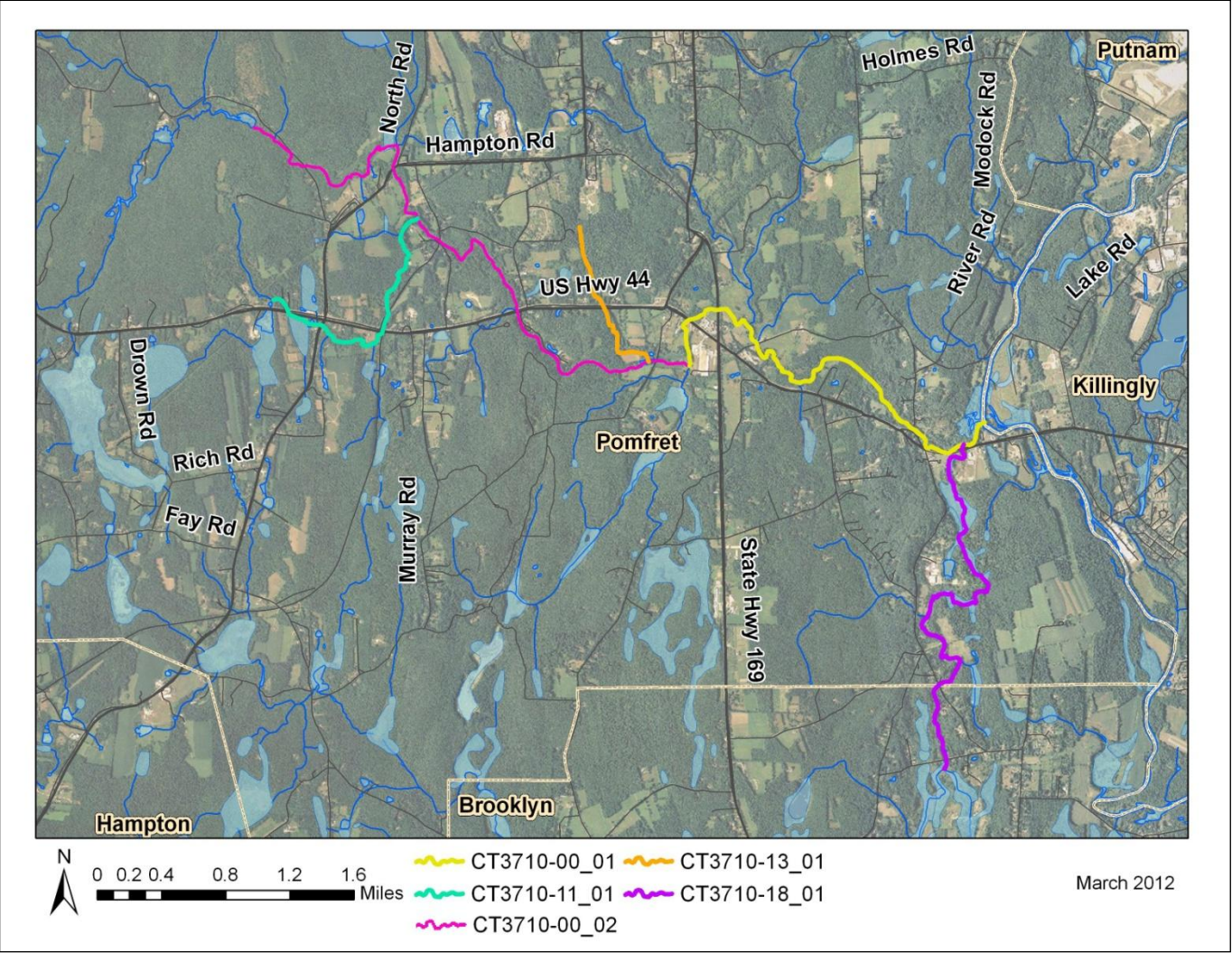
To aid in identifying possible bacteria sources, the geometric mean was also calculated for wet-weather and dry-weather sampling days for Sap Tree Run (Table 12). The geometric mean during dry-weather exceeded the WQS for *E. coli* at Station 5589.

Abington Brook (CT3710-11_01) is also a Class A freshwater stream (Figure 5). Its applicable designated uses are habitat for fish and other aquatic life and wildlife, recreation, potential drinking water supply, navigation, and industrial and agricultural water supply. Water quality analyses were conducted using data from four sampling locations between 2010-2011 (Table 2). The water quality criteria for *E. coli*, along with bacteria sampling results for these stations are presented in Table 13. The annual geometric mean was calculated for Station 6251 (2010) and exceeded the WQS for *E. coli*. Single sample values at this station also exceeded the WQS for *E. coli* ten times between 2010-2011. The wet/dry analysis revealed bacteria exceedances on both wet and dry weather days.

To aid in identifying possible bacteria sources, the geometric mean was also calculated for wet-weather and dry-weather sampling days for Abington Brook (Table 13). The geometric mean during dry-weather exceeded the WQS for *E. coli* at Stations 6251 and 6253. The geometric mean exceeded the WQS for *E. coli* at Station 6321 for both wet and dry-weather.

Due to the elevated bacteria measurements presented in Tables 9-13, the two main stem segments of Mashamoquet Brook and their tributaries did not meet CT's bacteria WQS, were identified as impaired, and placed on the CT List of Waterbodies Not Meeting Water Quality Standards, also known as the CT 303(d) Impaired Waters List. The Clean Water Act requires that all 303(d) listed waters undergo a TMDL assessment that describes the impairments and identifies the measures needed to restore water quality. The goal is for all waterbodies to comply with State WQS.

Figure 5: Aerial map of Mashamoquet Brook and its impaired tributaries



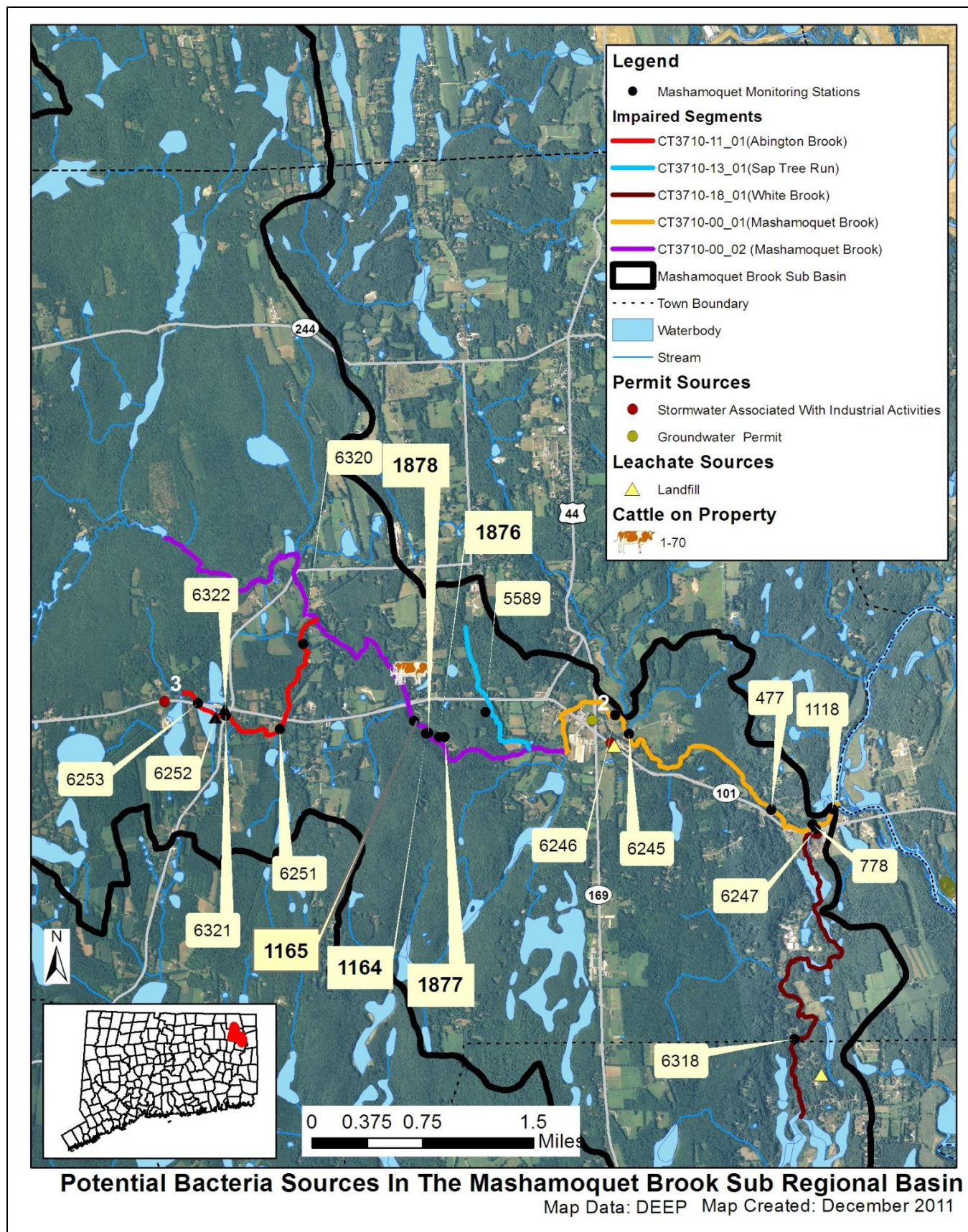
POTENTIAL BACTERIA SOURCES

Potential sources of indicator bacteria in a watershed include point and non-point sources, such as stormwater runoff, agriculture, sanitary sewer overflows (collection system failures), illicit discharges, and inappropriate discharges to the waterbody. Potential sources that have been tentatively identified in the watershed based on land use (Figures 3 and 4) and a collection of local information for the impaired waterbody is presented in Table 3 and Figure 6. However, the list of potential sources is general in nature and should not be considered comprehensive. There may be other sources not listed here that contribute to the observed water quality impairment in the study segments. Further monitoring and investigation will confirm listed sources and discover additional ones. Some segments in this watershed are currently listed as unassessed by CT DEEP procedures. This does not suggest that there are no potential issues on this segment, but indicates a lack of current data to evaluate the segment as part of the assessment process. For some segments, there are data from permitted sources, and CT DEEP recommends that any elevated concentrations found from those permitted sources be addressed through voluntary reduction measures. More detailed evaluation of potential sources is expected to become available as activities are conducted to implement these TMDLs.

Table 3: Potential bacteria sources in the Mashamoquet Brook watershed

Impaired Segment	Permit Source	Illicit Discharge	CSO/SSO Issue	Failing Septic System	Agricultural Activity	Stormwater Runoff	Nuisance Wildlife/ Pets	Other
Mashamoquet Brook CT3710-00_01	x			x	x	x	x	x
Mashamoquet Brook CT3710-00_02	x			x	x	x	x	x
White Brook CT3710-18_01				x	x	x	x	x
Sap Tree Run CT3710-13_01				x	x	x	x	x
Abington Brook CT3710-11_01	x			x	x	x	x	x

Figure 6: Potential sources in the Mashamoquet Brook watershed at the sub-regional level



The potential sources map for the impaired basin was developed after thorough analysis of available data sets. If information is not displayed in the map, then no sources were discovered during the analysis. The following is the list of potential sources that were evaluated: problems with migratory waterfowl, golf course locations, reservoirs, proposed and existing sewer service, cattle farms, poultry farms, permitted sources of bacteria loading (surface water discharge, MS4 permit, industrial stormwater, commercial stormwater, groundwater permits, and construction related stormwater), and leachate and discharge sources (agricultural waste, CSOs, failing septic systems, landfills, large septic tank leach fields, septage lagoons, sewage treatment plants, and water treatment or filter backwash).

Point Sources

Permitted sources within the watershed that could potentially contribute to the bacteria loading are identified in Table 4. This table includes permit types that may or may not be present in the impaired watershed. A list of active permits in the watershed is included in Table 5. Additional investigation and monitoring may reveal the presence of additional discharges in the watershed. Available effluent data from each of these permitted categories found within the watershed are compared to the CT State WQS for the appropriate receiving waterbody use and type. When available, bacteria data results from these permitted sources are listed in Table 6.

Table 4: General categories list of other permitted discharges

Permit Code	Permit Description Type	Number in watershed
CT	Surface Water Discharges	0
GPL	Discharge of Swimming Pool Wastewater	0
GSC	Stormwater Discharge Associated with Commercial Activity	0
GSI	Stormwater Associated with Industrial Activity	2
GSM	Part B Municipal Stormwater MS4	0
GSN	Stormwater Registration – Construction	0
LF	Groundwater Permit (School)	1
UI	Underground Injection	0

Permitted Sources

As shown in Table 5, there are multiple permitted discharges in the Mashamoquet River watershed. Bacteria data from 2010-2011 from several of these industrial permitted facilities discharging to Abington Brook are included in Table 6. Multiple samples were high, exceeding the WQS for single samples, particularly at Station 6252. Permitted sources discharging directly to the impaired segments are a potential source of bacterial contamination to Mashamoquet River. Since the MS4 permits are not targeted to a specific location, but the geographic area of the regulated municipality, there is no one accurate location on the map to display the location of these permits. One dot will be displayed at the geographic center of the municipality as a reference point. Sometimes this location falls outside of the targeted watershed and therefore the MS4 permit will not be displayed in the Potential Sources Map.

Using the municipal border as a guideline will show which areas of an affected watershed are covered by an MS4 permit.

Table 5: Permitted facilities within the Mashamoquet Brook watershed

Permit ID	Permit Type	Site Name/Address	Map #
UI0000167	Groundwater Permit	Pomfret Community School	2
GS1000054	Stormwater Associated With Industrial Activities	Pomfret Maintenance Facility	1
GS1000840	Stormwater Associated With Industrial Activities	Pomfret Highway Garage	3

Table 6: *E. coli* data (colonies/100 mL) for Stations 6322 and 6252 on Abington Brook related to source tracking efforts in the Mashamoquet Brook watershed.

Town	Location	Station Name	Receiving Water	Sample Location	Sample Date	Result
Pomfret	Tributary to Abington Brook	6322	Abington Brook	Upstream of confluence with Abington Brook and downstream of Route 44	6/2/2011	63
Pomfret	Tributary to Abington Brook	6322	Abington Brook	Upstream of confluence with Abington Brook and downstream of Route 44	6/9/2011	130
Pomfret	Tributary to Abington Brook	6322	Abington Brook	Upstream of confluence with Abington Brook and downstream of Route 44	6/16/2011	40
Pomfret	Tributary to Abington Brook	6322	Abington Brook	Upstream of confluence with Abington Brook and downstream of Route 44	6/23/2011	52
Pomfret	Tributary to Abington Brook	6322	Abington Brook	Upstream of confluence with Abington Brook and downstream of Route 44	6/30/2011	84
Pomfret	Tributary to Abington Brook	6322	Abington Brook	Upstream of confluence with Abington Brook and downstream of Route 44	7/7/2011	63
Pomfret	Tributary to Abington Brook	6322	Abington Brook	Upstream of confluence with Abington Brook and downstream of Route 44	7/14/2011	10
Pomfret	Tributary to Abington Brook	6322	Abington Brook	Upstream of confluence with Abington Brook and downstream of Route 44	7/21/2011	20
Pomfret	Tributary to Abington Brook	6252	Abington Brook	Upstream of Route 97 behind #521 Hampton Road	7/29/2010	1300

Table 6: *E. coli* data (colonies/100 mL) for Stations 6322 and 6252 on Abington Brook related to source tracking efforts in the Mashamoquet Brook watershed. (continued)

Town	Location	Station Name	Receiving Water	Sample Location	Sample Date	Result
Pomfret	Tributary to Abington Brook	6252	Abington Brook	Upstream of Route 97 behind #521 Hampton Road	8/5/2010	4900
Pomfret	Tributary to Abington Brook	6252	Abington Brook	Upstream of Route 97 behind #521 Hampton Road	8/12/2010	370
Pomfret	Tributary to Abington Brook	6252	Abington Brook	Upstream of Route 97 behind #521 Hampton Road	8/19/2010	52
Pomfret	Tributary to Abington Brook	6252	Abington Brook	Upstream of Route 97 behind #521 Hampton Road	8/26/2010	440
Pomfret	Tributary to Abington Brook	6252	Abington Brook	Upstream of Route 97 behind #521 Hampton Road	9/2/2010	240
Pomfret	Tributary to Abington Brook	6252	Abington Brook	Upstream of Route 97 behind #521 Hampton Road	9/9/2010	665 [†]
Pomfret	Tributary to Abington Brook	6252	Abington Brook	Upstream of Route 97 behind #521 Hampton Road	9/15/2010	1200
Shaded cells indicate an exceedance of water quality criteria						
[†] Average of two duplicate samples						

Municipal Stormwater Permitted Sources

Per the EPA Phase II Stormwater rule all municipal storm sewer systems (MS4s) operators located within US Census Bureau Urbanized Areas (UAs) must be covered under MS4 permits regulated by the appropriate State agency. There is an EPA waiver process that municipalities can apply for to not participate in the MS4 program. In Connecticut, EPA has granted such waivers to 19 municipalities. All participating municipalities within UAs in Connecticut are currently regulated under MS4 permits by CT DEEP staff in the MS4 program.

The US Census Bureau defines a UA as a densely settled area that has a census population of at least 50,000. A UA generally consists of a geographic core of block groups or blocks that exceeds the 50,000 people threshold and has a population density of at least 1,000 people per square mile. The UA will also include adjacent block groups and blocks with at least 500 people per square mile. A UA consists of all or part of one or more incorporated places and/or census designated places, and may include additional territory outside of any place. (67 FR 11663)

For the 2000 Census a new geographic entity was created to supplement the UA blocks of land. This created a block known as an Urban Cluster (UC) and is slightly different than the UA. The definition of a

UC is a densely settled area that has a census population of 2,500 to 49,999. A UC generally consists of a geographic core of block groups or blocks that have a population density of at least 1,000 people per square mile, and adjacent block groups and blocks with at least 500 people per square mile. A UC consists of all or part of one or more incorporated places and/or census designated places; such a place(s) together with adjacent territory; or territory outside of any place. The major difference is the total population cap of 49,999 people for a UC compared to >50,000 people for a UA. (67 FR 11663)

While it is possible that CT DEEP will be expanding the reach of the MS4 program to include UC municipalities in the near future they are not currently under the permit. However, the GIS layers used to create the MS4 maps in this Statewide TMDL did include both UA and UC blocks. This factor creates some municipalities that appear to be within an MS4 program that are not currently regulated through an MS4 permit. This oversight can explain a municipality that is at least partially shaded grey in the maps and there are no active MS4 reporting materials or information included in the appropriate appendix. While these areas are not technically in the MS4 permit program, they are still considered urban by the cluster definition above and are likely to contribute similar stormwater discharges to affected waterbodies covered in this TMDL.

As previously noted, EPA can grant a waiver to a municipality to preclude their inclusion in the MS4 permit program. One reason a waiver could be granted is a municipality with a total population less than 1000 people, even if the municipality was located in a UA. There are 19 municipalities in Connecticut that have received waivers, this list is: Andover, Bozrah, Canterbury, Coventry, East Hampton, Franklin, Haddam, Killingworth, Litchfield, Lyme, New Hartford, Plainfield, Preston, Salem, Sherman, Sprague, Stafford, Washington, and Woodstock. There will be no MS4 reporting documents from these towns even if they are displayed in an MS4 area in the maps of this document.

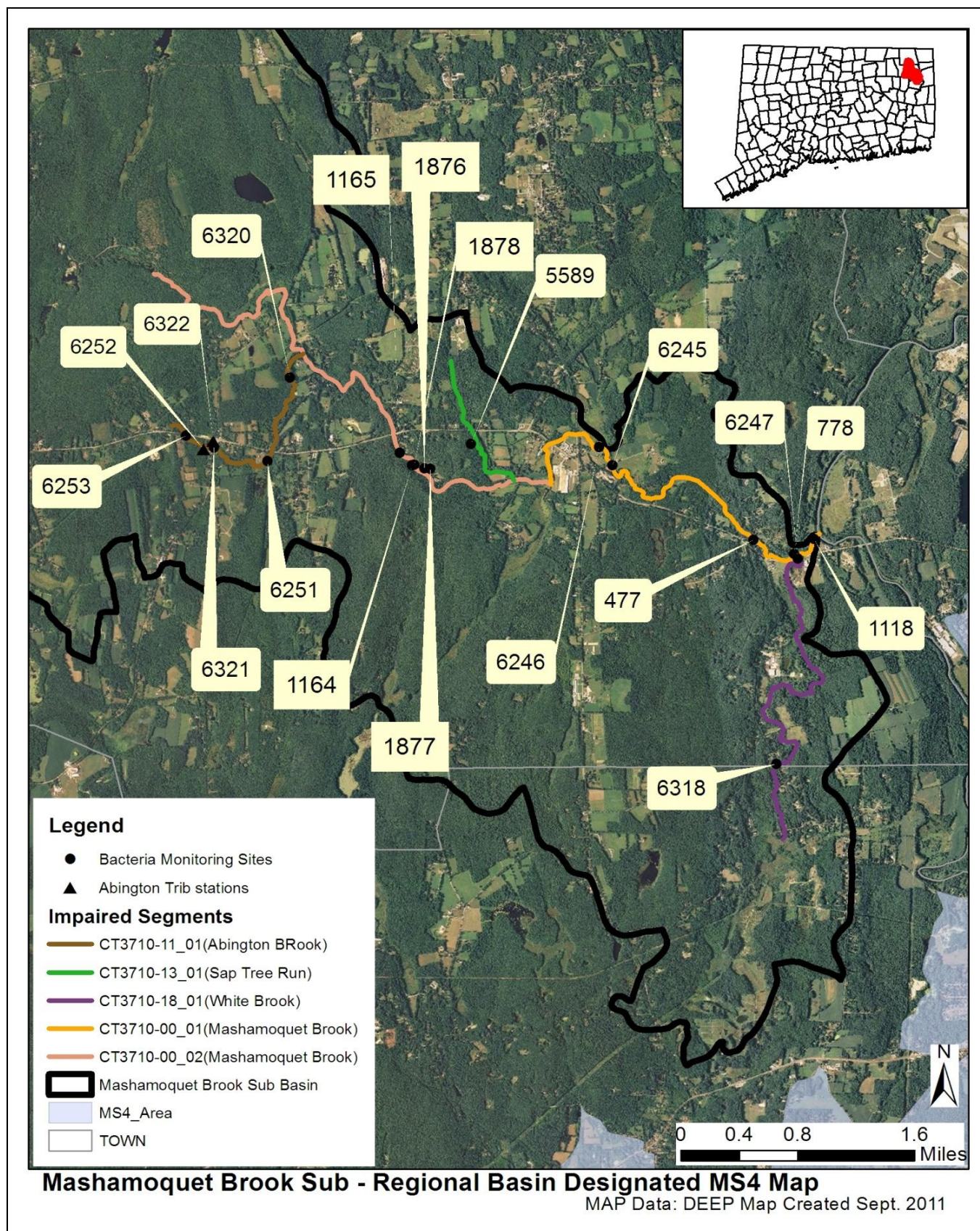
The list of US Census UCs is defined by geographic regions and is named for those regions, not necessarily by following municipal borders. In Connecticut the list of UCs includes blocks in the following Census Bureau regions: Colchester, Danielson, Lake Pocotopaug, Plainfield, Stafford, Storrs, Torrington, Willimantic, Winsted, and the border area with Westerly, RI (67 FR 11663). Any MS4 maps showing these municipalities may show grey areas that are not currently regulated by the CT DEEP MS4 permit program.

Urban areas, as defined by the U.S. Census Bureau (above), are required to comply with the General Permit for the Discharge of Stormwater from Small Municipal Storm Sewer Systems (MS4 permit) issued by the Connecticut Department of Energy and Environmental Protection (DEEP). This general permit is only applicable to municipalities that are identified in Appendix A of the MS4 permit that contain designated urban areas and discharge stormwater via a separate storm sewer system to surface waters of the State. There are no MS4 communities within the Mashamoquet Brook watershed (Figure 7).

Publicly Owned Treatment Works

As shown in Figure 7, there are no publicly owned treatment works (POTW), or wastewater treatment plants, in the Mashamoquet Brook watershed, and therefore, POTWs are not a potential source of loading to Mashamoquet Brook or its tributaries.

Figure 7: MS4 areas of the Mashamoquet Brook watershed



Nonpoint Sources

Nonpoint source pollution (NPS) comes from many diffuse sources and is more difficult to identify and control. NPS pollution is often associated with land-use practices. Examples of NPS that can contribute bacteria to surface waters include insufficient septic systems, pet and wildlife waste, agriculture, and contact recreation (swimming or wading). Potential sources of NPS within the Mashamoquet Brook watershed are described below. The 2011 Mashamoquet Brook Abbreviated Watershed Based Plan describes many of these sources in greater detail:

(http://www.ct.gov/dep/lib/dep/water/watershed_management/wm_plans/mashamoquet_brook_wbp.pdf).

Recreation at Mashamoquet Brook State Park

People coming in direct contact with surface water presents another potential source of bacterial contamination. Microbial source tracking (MST) surveys conducted in New Hampshire have shown humans to be a source of bacterial contamination at beaches (Jones, 2008). Since visitors to Mashamoquet Brook State Park have access to the swimming pond that results from the diversion of Mashamoquet Brook, it is probable that humans are depositing fecal matter, which contains high levels of bacteria, directly into the diversion pond at the park. It's also possible that water containing high levels of bacteria could be routed to the diversion pond from Mashamoquet Brook's impaired segment (CT3710-00_02).

Agricultural Activities

Agricultural operations are an important economic activity and landscape feature in many areas of the State. Runoff from agricultural fields may contain pollutants such as bacteria and nutrients (USEPA, 2011a). This runoff can include pollutants from farm practices such as storing manure, allowing livestock to wade in nearby waterbodies, applying fertilizer, and reducing the width of vegetated buffer along the shoreline.

Agricultural land use makes up 15% of the Mashamoquet Brook watershed. While there are only two active dairy farms in Pomfret, dairy farms outside of Pomfret grow crops on agricultural land in town, trucking in liquefied manure to spread on the land surface in order to fertilize the fields they lease (ECCD, 2011). In addition, there are multiple beef cattle farms located throughout the watershed. The 2010 watershed survey documented livestock in and around the streams. This same survey documented horses in many locations throughout the watershed. Horses and cows deposit manure containing bacteria onto the land which accumulates during dry weather, and is transported to surface waters during wet weather events. A 1,000 pound horse can generate 8-10 tons of manure a year, equivalent to 12-15 cubic yards of manure each year (ECCD, 2011). Agricultural activities are a potential source of bacteria in Mashamoquet Brook. Practices such as exclusionary fencing, alternate watering resources, providing shade outside of the riparian, maintaining riparian buffers and locating manure storage areas away from wetlands and water sources will reduce the amount of bacteria and nutrients delivered to the stream. Use of modern tools to reduce the amount of land-applied liquid manure in the watershed (e.g. aerobic manure digesters) would have a positive effect on stream water quality (Brushett et al., 2009).

Wildlife and Domestic Animal Waste

Wildlife and domestic animals, including horses as mentioned above, within the Mashamoquet Brook watershed represent another potential source of bacteria. The large area of land in conservation in the watershed including Mashamoquet Brook State Park, Natchaug State Forest and preserved open space parcels managed for wildlife provide habitat for many wildlife species including deer, coyote, bobcat,

fisher, beaver, porcupines, birds and other small animal species (ECCD, 2011). Additionally, the farm fields near the stream and throughout the watershed attract flocks of migrating Canada geese in the spring and fall. However, a recent study by DEEP Wildlife staff indicates that no resident goose population is present at Mashamoquet Brook State Park even though resident geese with goslings have been documented in scattered location throughout the watershed (ECCD, 2011). Wildlife, including waterfowl, may be a significant bacteria source to surface waters. With the construction of roads and drainage systems, these wastes may no longer be retained on the landscape, but instead may be conveyed via stormwater to the nearest surface water. These physical land alterations can exacerbate the impact of these natural sources on water quality (USEPA, 2001). As the majority of the watershed is undeveloped, wildlife waste is a potential source of bacteria to the Mashamoquet Brook.

Picnic tables and grilling areas along the stream within Mashamoquet State Park attract wildlife and result in runoff of wildlife feces into the stream. Wildlife exclusion practices at picnic areas in the park adjacent to Mashamoquet Brook as well as daily cleanup of food scraps will help discourage attraction of scavenging animals near the brook (ECCD, 2011). In addition, pet waste was regularly seen near the brook during the ECCD watershed survey despite the prohibition of dogs in the beach and camp areas at the Park (ECCD, 2011). Without any signs requesting park visitors to clean up their pet waste, this is another potential source of bacteria in the stream.

Insufficient Septic Systems and Illicit Discharges

With the exception of one location on Searles Road, all other development in the Mashamoquet watershed rely on onsite wastewater treatment systems, such as septic systems (ECCD, 2011). Insufficient or failing septic systems can be significant sources of bacteria by allowing raw waste to reach surface waters. The Pomfret Community School currently operates a mini-wastewater treatment facility prior to discharging their wastewater to a leaching field (ECCD, 2011). The Town of Pomfret recognizes the challenges related to soil types for placement of subsurface wastewater disposal systems because close to 65% of the land in the town have septic field suitability limitations, meaning they are rated low or very low for suitability. In Connecticut, local health directors or health districts are responsible for keeping track of any reported insufficient or failing septic systems in a specific municipality. The Town of Pomfret utilizes the Northeast District Department of Health (NDDH) (<http://www.nddh.org>) as the local health department authority. In 2011, the NDDH provided septic tank data repair permits issued between 2006-2011 for the Mashamoquet Watershed Based Plan (ECCD, 2011). According to the Watershed Based Plan, there is a high potential for unreported septic tank issues in the watershed. The Mashamoquet Watershed Based Plan lists both structural and non-structural methods to eliminate septic system failures/illicit discharge that result in bacteria in the stream: (http://www.ct.gov/dep/lib/dep/water/watershed_management/wm_plans/mashamoquet_brook_wbp.pdf).

Stormwater Runoff from Developed Areas

Only a small portion of the Mashamoquet Brook watershed is developed. Yet, approximately 10% of the land use in the watershed is considered urban, including the numerous roadways. Pomfret Center, where the main stem of Mashamoquet Brook joins Wolf Den Brook near sampling Station 6245, is the most developed area in the watershed (Figures 4 and 8). This area includes commercial establishments, the Pomfret Community School and the Town Garage. Urban areas are often characterized by impervious cover, or surface areas such as roofs and roads that force water to run off land surfaces rather than infiltrate into the soil. Studies have shown a link between increasing impervious cover and degrading

water quality conditions in a watershed (CWP, 2003). In one study, researchers correlated the amount of fecal coliform to the percent of impervious cover in a watershed (Mallin *et al.*, 2000).

Between 2000 and 2010, the population of Pomfret increased by 12%. Developed land areas increased by 25% between 1985 and 2006 while the land in agriculture production decreased by 5.3%, or 189 acres based on CLEAR Changing Land Use data (ECCD, 2011). The conversion of agricultural land increases the amount of impervious surfaces and results in increased stormwater runoff. In addition, abandoned agricultural tile drain systems left over from historic agricultural practices often remain in the ground when the land use is converted from agriculture to residential/commercial development and may convey septic tank leachate or other contaminated runoff to the nearby stream or wetland (ECCD, 2011) delivering bacteria to the stream.

The majority of the Mashamoquet Brook watershed contains between 0-6% impervious cover, with the exception of two small impervious areas (7-11%) that make up 0.3% of the total imperviousness in the watershed (Figure 8). These two areas correspond with Pomfret Center, and a 4-H camp on Taft Pond Road.

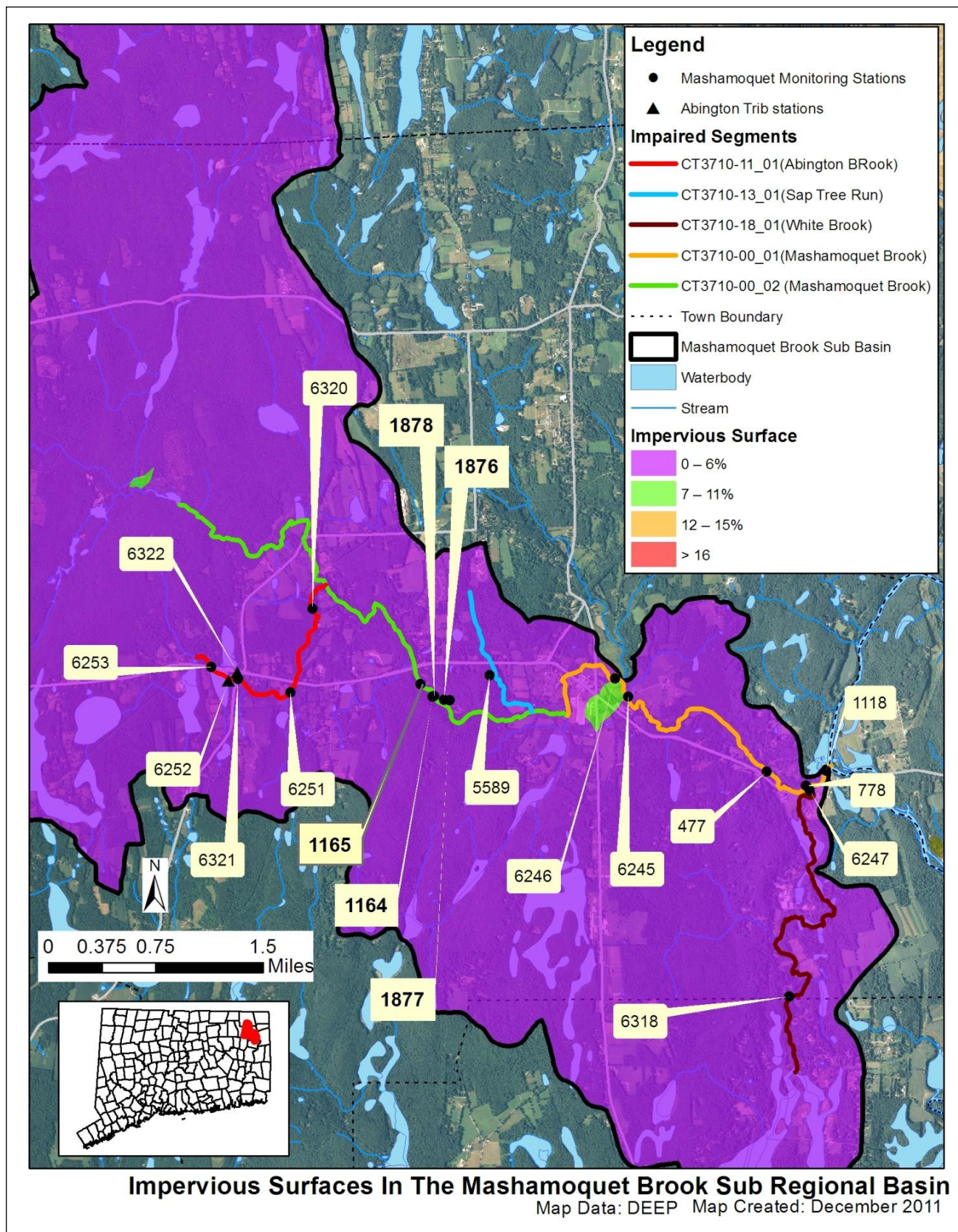
Additional Sources

Other potential sources of pollution in the Mashamoquet Brook watershed include leachate from two landfills (Figure 6). A town-owned property known as Abington Mall on Mashamoquet road formerly included three structures that were razed but the on-site wastewater disposal system is still present. The town currently has plans to convert the land into a commuter lot. The Mashamoquet Brook Watershed Based Plan identified this site as a potential source and recommends decommissioning of the disposal system (ECCD, 2011). Another potential source identified in the plan is the invasive Japanese barberry (*Berberis thunbergii*) documented upslope of the water diversion to By Pass Pond in the State Park. Removal of the invasive plants will provide a mechanism for reducing nutrient loading to the stream, as barberry infestations have been linked to higher non-native earthworm biomass which can result in increased phosphorus leaching (ECCD, 2011).

Five Mashamoquet Brook tributaries clearly failed to meet water quality standards for *E. coli* during the intensive water quality monitoring conducted in 2010. These tributaries included Abington Brook, Wappaquia Brook, Sap Tree Run Brook and White Brook as well as a small unnamed stream draining near Mashamoquet Brook State Park Campground. Further bracket sampling is needed, especially in the Abington Brook watershed, along with further evaluation of land use in the watershed of the unnamed brook in order to assess for potential bacterial contributions to Mashamoquet Brook (ECCD, 2010b).

There may be other sources not listed here or identified in Figure 6 that contribute to the observed water quality impairment in Mashamoquet Brook and its tributaries. Further monitoring and investigation will confirm the listed sources and discover additional ones. More detailed evaluation of potential sources is expected to become available as activities are conducted to implement this TMDL.

Figure 8: Impervious cover (%) for the Mashamoquet Brook sub-regional watershed



Land Use/Landscape

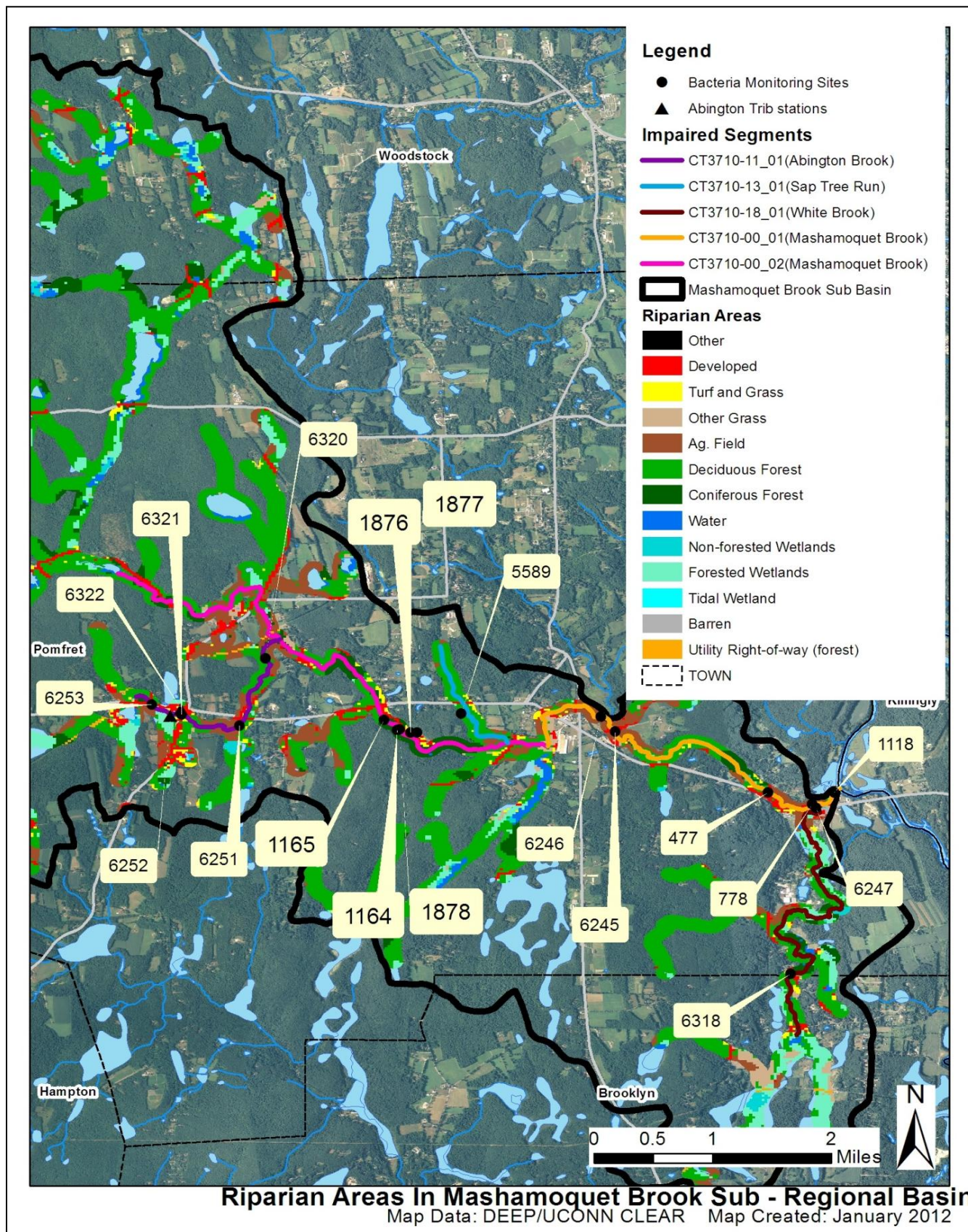
Riparian Buffer Zones

The riparian buffer zone is the area of land located immediately adjacent to streams, lakes, or other surface waters. The boundary of the riparian zone and the adjoining uplands is gradual and not always well-defined. However, riparian zones differ from uplands because of high levels of soil moisture, frequent flooding, and the unique assemblage of plant and animal communities found there. Through the interaction of their unique soils, hydrology, and vegetation, natural riparian areas influence water quality as contaminants are taken up into plant tissues, adsorbed onto soil particles, or modified by soil organisms. Any change to the natural riparian buffer zone can reduce the effectiveness of the natural buffer and has the potential to contribute to water quality impairment (USEPA, 2011b).

The CLEAR program at UCONN has created streamside buffer layers for the entire State of Connecticut (<http://clear.uconn.edu/>), which have been used in this TMDL. Analyzing this information can reveal potential sources and implementation opportunities at a localized level. The land use directly adjacent to a waterbody can have direct impacts on water quality from surface runoff sources. CLEAR conducted an analysis to determine the amount of development in riparian zones of 100 and 300 foot widths in the Town of Pomfret. The study indicated that 133 acres of developed land is located within the 100 foot stream buffer, and that 452 acres were located within the 300 foot stream buffer. Between 1985 and 2006 development in the riparian areas in town was less than 1% (ECCD, 2011). The lack of development within the buffer is likely a result of the large amount of land area in conservation along the stream.

The majority of the riparian zone for Mashamoquet Brook is characterized by deciduous and coniferous forest with patches of agricultural land (Figure 9). Agriculture in the buffer is most prominent in the upstream impaired segment of Mashamoquet Brook (Mashamoquet-02) and along Abington Brook. The lower main stem segment (Mashamoquet-01) likely experiences the most effects from development in the riparian zone, especially in the upper reaches where commercial development and agriculture encroach on the stream. As previously noted, if not properly treated, runoff from developed areas may contain pollutants such as bacteria and nutrients.

Figure 9: Riparian buffer zone information for the Mashamoquet Brook watershed



CURRENT MANAGEMENT ACTIVITIES

The Mashamoquet Brook Watershed Management Team, led by the Eastern Connecticut Conservation District (ECCD), has worked collaboratively to develop and implement programs that protect water quality from bacterial contamination. In 2011, the Mashamoquet Brook Watershed Management Team successfully completed the Mashamoquet Brook Abbreviated Watershed Based Plan that addresses non-point source pollution within the Mashamoquet Brook watershed. This document outlines current actions in the watershed and recommends future actions necessary to maintain or improve water quality. The finalized watershed plan is available for viewing at:

http://www.ct.gov/dep/lib/dep/water/watershed_management/wm_plans/mashamoquet_brook_wbp.pdf.

CT DEEP's Non-Point Source Pollution Program administers a Non-Point Source Grant Program with funding from EPA under Section 319 of the Clean Water Act (319 grant). A 319 grant was awarded to the ECCD in to develop the watershed based plan for implementation actions (<http://www.depdata.ct.gov/maps/nps/npsmap.htm>). As part of this project, the ECCD assessed the watershed (ECCD, 2010a) and determined and evaluated possible pollution sources utilizing strategic watershed-wide water quality monitoring methodology including bracket sampling (ECCD, 2010b).

The Mashamoquet Brook State Park management continues the practice of physically blocking flow of Mashamoquet Brook to By Pass Pond by inserting a board across the bypass opening following a period of heavy rain. This practice has been used since the 1970's is successful keeping bacteria levels in the pond within acceptable levels when *E.coli* concentrations in the stream are highest.

At least one active farm in the watershed has worked with the USDA Natural Resources Conservation Service to develop a manure management plan, install exclusionary fencing to keep animals out of the water, and instated rotational grazing (ECCD, 2011). The large dairy farm that leases cropland and spreads liquid manure in the Mashamoquet Brook watershed has applied for funding to produce alternative energy while eliminating bacteria and nutrients through the use of an anaerobic manure digester.

CT DEEP will continue routine monitoring of the By Pass Pond at Mashamoquet Brook State Park to assess for *E.coli* concentrations within the impaired stream reach.

RECOMMENDED NEXT STEPS

The Mashamoquet Watershed Management Team has developed management objectives to protect water quality from bacterial contamination in Mashamoquet Brook and its tributary streams. Future mitigative activities are necessary to ensure the long-term protection of Mashamoquet Brook and to prevent future beach closures at Mashamoquet Brook State Park. Many of these actions are listed below, and in more detail in Tables 7 and 8 (below), as well as in the 2011 Mashamoquet Brook Abbreviated Watershed Based Plan (ECCD, 2011).

1) Reduce the amount of contaminated runoff from agricultural areas.

Will require working with the agricultural community to enhance understanding of land stewardship and use of BMPs to protect water quality; Initiation of Small Farm Manure Management BMP Projects; encourage the use of management practices such as no-till conservation farming, sampling and chemical analysis of manure prior to application will reduce the possibility of over application and minimize runoff. Exclusionary fences should be installed to direct livestock movement away from streams and riparian areas and maintenance of streamside buffers will reduce the amount of bacteria and other contaminants entering the stream. Manure storage areas should be located away from wetlands and waterbodies and drainage areas, manure solids should be stored in covered areas. The amount of land-applied processed agricultural manure from confined feeding operations should be reduced using alternative methods including anaerobic manure digesters. Exiting leases between landowner and farmer should be reviewed and improved to encourage conservation practices.

2) Restore riparian vegetation in areas where it has been removed; address stream bank erosion.

Management of riparian vegetation protects streams from the impacts of developed land by trapping sediments, bacteria, nutrients, and other pollutants before they enter the stream. Therefore, restoring riparian vegetation in areas where it has been removed will help improve water quality in the stream. The watershed management team will need to: identify priority sites for establishment of buffers, obtain interest and permission from landowners and acquire funding to plant the buffers.

3) Reduce the number of septic system failures and/or illicit discharges.

Frequent pumping of septic systems, especially for small lots adjacent to stream channels and in areas with less suitable soils will help prevent septic leachate from reaching the stream. A septic system inventory (age, maintenance schedule, location) will assist with evaluating septic systems that may be in need of repair or replacement. Review of old USDA aerial photographs may help identify abandoned tile drain systems in agricultural fields and help restore water quality. Water quality monitoring using DNA markers can be used to quantify human waste contributions to bacteria impairment.

4) Address stormwater runoff through better design and retrofit of poorly designed areas.

Low Impact Development can be promoted through land use regulation/review and a demonstration project at the Pomfret Town Hall. Local land use regulations should be updated to reflect contemporary stormwater management practices as outline in the 2004 Connecticut Stormwater Quality Manual. The town should continue retrofits to existing stormwater outfall areas.

5) Implement BMPs and public outreach programs regarding animal and human waste at Mashamoquet Brook State Park.

Encourage visitors to clean up their pet's waste with signage and the availability of biodegradable pet waste disposal bags near parking areas and at trail heads; reduce wildlife in picnic grounds by continuing to perform routine cleanup of picnic areas. Picnic areas should be properly maintained to eliminate food waste and reduce wildlife occurrence and wildlife feces; remove Japanese barberry upslope of Mashamoquet Brook in order to restore native species and reduce increased leaching of nutrients from non-native earth worms; continue monitoring stream and rainfall data.

Any education and outreach program should highlight the importance of not feeding waterfowl and wildlife, picking up after dogs and other pets, and properly disposing human waste (such as diapers) around the swimming pond. The park and visitors can take measures to minimize waterfowl-related impacts such as allowing tall, coarse vegetation to grow in the riparian areas of the pond that are frequented by waterfowl. In addition, any educational program should emphasize that feeding waterfowl, such as ducks, geese, and swans, may contribute to water quality impairments in the pond and can harm human health and the environment. BMPs effective at reducing the impact of animal and human waste on water quality include installing signage, providing waste receptacles in high-use areas, enacting ordinances requiring the clean-up of waste, and targeting educational and outreach programs in problem areas. See Tables 7 and 8 for descriptions of recommended structural and non-structural BMPs.

6) Review and update Pomfret Land Use Regulations for consistency with the 2004 Connecticut Stormwater Quality Manual and the 2002 Connecticut Erosion and Sediment Control Manual

Change regulations to be consistent with State requirements and require low impact development (LID) strategies.

7) Conduct Track Down Surveys in tributary watersheds to Mashamoquet Brook to determine sources of bacteria.

Conduct bacterial analysis and visual surveys for Wappaquia Brook, White Brook, and Sap Tree Run Brook to determine sources of bacteria that may be contributing to the impairment in Mashamoquet Brook.

Table 7: Recommended structural BMPs to reduce bacteria from the 2011 Mashamoquet Brook Watershed Management Plan

BMP Reduction	Reduction Estimate
Elimination of Septic System Failures/Illicit Discharges	High
Reduction of sources that can be treated by riparian buffer	Medium
Manure management – horses Cover manure with tarp or structure Install manure compost system Initiate manure composting cooperative	Medium
Animal feeding operations – large dairy farm Aerobic Manure Digester	High

Table 7: Recommended structural BMPs to reduce bacteria from the 2011 Mashamoquet Brook Watershed Management Plan (continued)

BMP Reduction	Reduction Estimate
Animal feeding operations – small farms Install manure storage area with 4 – 6 month holding capacity Separate clean runoff from manure contaminated area Cover livestock holding areas Bermed livestock yard to prevent runoff	Medium
Livestock grazing BMPs Exclusionary fencing to keep livestock out of riparian areas and streams Provide watering station away from stream Upland shade trees	Medium
Stormwater infiltration systems (rain gardens, etc)	High
UV light Treatment system to pre-treat water flowing into By Pass Pond	High
Install pet waste disposal bag dispenser and signage at Mashamoquet Brook State Park	Low

Table 8: Recommended non-structural controls to reduce bacteria from the 2011 Mashamoquet Brook Watershed Management Plan

Nonstructural BMP	Reduction Estimate	Purpose
Water conservation/reduce pressure on wastewater systems	Low	Reduce waste volume in challenged systems
Manure management – cropland Calibrated manure spreading equipment Soil testing to determine nutrient needs Manure testing to determine nutrient content Encourage no-till farming methods	Medium	Reduce excess application of manure; reduce runoff from farm fields
Manure management– large dairy farm Aerobic manure digester	High	Power generation with a side effect of bacteria elimination in nutrient byproduct.
Promote timber harvest BMPs	Low	Prevent water contamination through erosion from timber harvest areas
Pet waste Pickup	Low	Reduce local source of bacteria in the park
Wildlife exclusion practices at picnic area adjacent to Mashamoquet Brook Daily cleanup food scraps to discourage attraction of scavenging animals near brook	Low	Reduce local source of bacteria in the park
Create a septic system database including age, type and maintenance history	NA	To help locate failing systems and target outreach

BACTERIA DATA AND PERCENT REDUCTIONS TO MEET THE TMDL

Table 9: Mashamoquet Brook Bacteria Data**Waterbody ID:** CT3710-00_01**Characteristics:** Freshwater, Class A, Habitat for Fish and other Aquatic Life and Wildlife, Recreation, Potential Drinking Water Supply, and Industrial and Agricultural Water Supply**Impairment:** Recreation (*E. coli* bacteria)**Water Quality Criteria for *E. coli*:**

Geometric Mean: 126 colonies/100 mL

Single Sample: 410 colonies/100 mL

Percent Reduction to meet TMDL:Geometric Mean: **65%**Single Sample: **94%****Data:** 1999-2010 from CT DEEP targeted sampling efforts, 2012 TMDL Cycle**Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (3710-00_01) with annual geometric means calculated**

Station Name	Station Location	Date	Result	Wet/Dry	Geomean
1118	Mouth of Mashamoquet Brook	6/3/2010	200 [†]	wet	363* (65%)
1118	Mouth of Mashamoquet Brook	6/10/2010	350	wet	
1118	Mouth of Mashamoquet Brook	6/17/2010	170 [†]	dry	
1118	Mouth of Mashamoquet Brook	6/24/2010	310	dry	
1118	Mouth of Mashamoquet Brook	6/29/2010	160	dry	
1118	Mouth of Mashamoquet Brook	7/8/2010	280	dry	
1118	Mouth of Mashamoquet Brook	7/15/2010	6500* (94%)	dry	
1118	Mouth of Mashamoquet Brook	7/22/2010	280	dry	
778	Adjacent to Route 101	5/22/2002	41 [†]	dry	291
778	Adjacent to Route 101	8/20/2002	4600	wet	
778	Adjacent to Route 101	10/22/2002	130	dry	
778	Adjacent to Route 101	4/10/2003	20	wet	NA
477	Downstream of Wright's Crossing Road near Mill Road	10/27/1999	41 [†]	dry	NA

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_01) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Result	Wet/Dry	Geomean
477	Downstream of Wright's Crossing Road near Mill Road	2/16/2000	85	wet	69
477	Downstream of Wright's Crossing Road near Mill Road	5/15/2000	73	wet	
477	Downstream of Wright's Crossing Road near Mill Road	8/21/2000	52	dry	
6245	Upstream of Bosworth Road	7/29/2010	150	wet	146
6245	Upstream of Bosworth Road	8/5/2010	74	wet	
6245	Upstream of Bosworth Road	8/12/2010	160	dry	
6245	Upstream of Bosworth Road	8/19/2010	240	dry	
6245	Upstream of Bosworth Road	8/26/2010	120	dry	
6245	Upstream of Bosworth Road	9/2/2010	130	dry	
6245	Upstream of Bosworth Road	9/8/2010	320	wet	
6245	Upstream of Bosworth Road	9/15/2010	98 [†]	dry	
6246	Upstream of Wappaquia Brook on Baffin Sanctuary	7/29/2010	73	wet	128
6246	Upstream of Wappaquia Brook on Baffin Sanctuary	8/5/2010	200	wet	
6246	Upstream of Wappaquia Brook on Baffin Sanctuary	8/12/2010	170	dry	
6246	Upstream of Wappaquia Brook on Baffin Sanctuary	8/19/2010	170	dry	
6246	Upstream of Wappaquia Brook on Baffin Sanctuary	8/26/2010	330	dry	
6246	Upstream of Wappaquia Brook on Baffin Sanctuary	9/2/2010	130 [†]	dry	
6246	Upstream of Wappaquia Brook on Baffin Sanctuary	9/8/2010	130	wet	
6246	Upstream of Wappaquia Brook on Baffin Sanctuary	9/15/2010	31	dry	
Shaded cells indicate an exceedance of water quality criteria					
†Average of two duplicate samples					
** Weather conditions for selected data taken from Hartford because local station had missing data					
*Indicates single sample and geometric mean values used to calculate the percent reduction					

**Wet and dry weather geometric mean values for monitoring stations on Mashamoquet Brook
(CT3710-00_01)**

Station Name	Station Location	Years Sampled	Number of Samples		Geometric Mean		
			Wet	Dry	All	Wet	Dry
1118	Mouth of Mashamoquet Brook	2010	2	6	363	265	403
477	Downstream of Wright's Crossing Road near Mill Road	1999-2000	2	2	60	79	46
778	Adjacent to Route 101	2002-2003	2	2	149	303	73
6245	Upstream of Bosworth Road	2010	3	5	146	153	142
6246	Upstream of Wappaquia Brook on Baffin Sanctuary	2010	3	5	128	124	131
Shaded cells indicate an exceedance of water quality criteria Weather condition determined from rain gauges at West Thompson Lake, Grosvenor Dale in Windham, CT.							

Table 10: Mashamoquet Brook Bacteria Data**Waterbody ID:** CT3710-00_02**Characteristics:** Freshwater, Class A, Habitat for Fish and other Aquatic Life and Wildlife, Recreation, Potential Drinking Water Supply, and Industrial and Agricultural Water Supply**Impairment:** Recreation (*E. coli* bacteria)**Water Quality Criteria for *E. coli*:**

Geometric Mean: 126 colonies/100 mL

Single Sample: 235 colonies/100 mL

Percent Reduction to meet TMDL:Geometric Mean: **60%**Single Sample: **88%****Data:** 1998-2011 from CT DEEP targeted sampling efforts, 2012 TMDL Cycle**Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated**

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1877	Mashamoquet Brook	5/28/2003	31	wet	45
1877	Mashamoquet Brook	6/3/2003	10	wet	
1877	Mashamoquet Brook	6/10/2003	10	dry	
1877	Mashamoquet Brook	6/17/2003	42	dry	
1877	Mashamoquet Brook	6/24/2003	110	wet	
1877	Mashamoquet Brook	7/1/2003	140	dry	
1877	Mashamoquet Brook	7/8/2003	150	dry	
1877	Mashamoquet Brook	7/9/2003	220	dry	
1877	Mashamoquet Brook	7/15/2003	99	dry	
1877	Mashamoquet Brook	7/22/2003	75	dry	
1877	Mashamoquet Brook	7/29/2003	87	dry	
1877	Mashamoquet Brook	8/5/2003	120	wet	
1877	Mashamoquet Brook	8/6/2003	10	wet	
1877	Mashamoquet Brook	8/12/2003	10	wet	
1877	Mashamoquet Brook	8/19/2003	10	dry	
1877	Mashamoquet Brook	8/26/2003	64	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1877	Mashamoquet Brook	6/2/2004	20	wet	79
1877	Mashamoquet Brook	6/8/2004	64	dry	
1877	Mashamoquet Brook	6/15/2004	64	dry	
1877	Mashamoquet Brook	6/22/2004	140	dry	
1877	Mashamoquet Brook	6/29/2004	42	wet	
1877	Mashamoquet Brook	7/7/2004	120	wet	
1877	Mashamoquet Brook	7/13/2004	87	wet	
1877	Mashamoquet Brook	7/20/2004	31	dry	
1877	Mashamoquet Brook	7/27/2004	20	dry	
1877	Mashamoquet Brook	8/3/2004	250	wet	
1877	Mashamoquet Brook	8/4/2004	87	dry	
1877	Mashamoquet Brook	8/10/2004	64	dry	
1877	Mashamoquet Brook	8/17/2004	180	wet	
1877	Mashamoquet Brook	8/24/2004	160	dry	
1877	Mashamoquet Brook	8/31/2004	220	wet	
1877	Mashamoquet Brook	6/1/2005	31	wet	51
1877	Mashamoquet Brook	6/7/2005	140	dry	
1877	Mashamoquet Brook	6/14/2005	160	wet	
1877	Mashamoquet Brook	6/21/2005	20	dry	
1877	Mashamoquet Brook	6/28/2005	140	dry	
1877	Mashamoquet Brook	7/6/2005	31	dry	
1877	Mashamoquet Brook	7/12/2005	160	dry	
1877	Mashamoquet Brook	7/13/2005	75	dry	
1877	Mashamoquet Brook	7/19/2005	10	dry	
1877	Mashamoquet Brook	7/26/2005	140	dry	
1877	Mashamoquet Brook	8/2/2005	20	dry	
1877	Mashamoquet Brook	8/9/2005	64	dry	
1877	Mashamoquet Brook	8/16/2005	180	wet	
1877	Mashamoquet Brook	8/23/2005	20	dry	
1877	Mashamoquet Brook	8/30/2005	10	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1877	Mashamoquet Brook	5/31/2006	160	dry	82
1877	Mashamoquet Brook	6/6/2006	53	wet	
1877	Mashamoquet Brook	6/13/2006	64	dry	
1877	Mashamoquet Brook	6/20/2006	75	dry	
1877	Mashamoquet Brook	6/21/2006	120	dry	
1877	Mashamoquet Brook	6/27/2006	10	wet	
1877	Mashamoquet Brook	7/6/2006	99	wet**	
1877	Mashamoquet Brook	7/8/2006	360	dry**	
1877	Mashamoquet Brook	7/11/2006	120	wet**	
1877	Mashamoquet Brook	7/19/2006	360	dry**	
1877	Mashamoquet Brook	7/21/2006	20	dry**	
1877	Mashamoquet Brook	7/25/2006	250	dry**	
1877	Mashamoquet Brook	7/26/2006	75	wet**	
1877	Mashamoquet Brook	8/1/2006	75	dry**	
1877	Mashamoquet Brook	8/8/2006	10	dry	
1877	Mashamoquet Brook	8/15/2006	42	wet	
1877	Mashamoquet Brook	8/22/2006	165 [†]	wet	
1877	Mashamoquet Brook	8/29/2006	210	wet	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1877	Mashamoquet Brook	5/22/2007	20	dry	71
1877	Mashamoquet Brook	5/30/2007	87	dry	
1877	Mashamoquet Brook	6/5/2007	64	wet	
1877	Mashamoquet Brook	6/12/2007	160	dry	
1877	Mashamoquet Brook	6/19/2007	150	dry	
1877	Mashamoquet Brook	6/21/2007	190	dry	
1877	Mashamoquet Brook	6/26/2007	285 [†]	dry	
1877	Mashamoquet Brook	6/28/2007	120	dry	
1877	Mashamoquet Brook	7/3/2007	75	dry	
1877	Mashamoquet Brook	7/10/2007	53	dry	
1877	Mashamoquet Brook	7/17/2007	31	dry	
1877	Mashamoquet Brook	7/24/2007	10	wet	
1877	Mashamoquet Brook	7/31/2007	2000	wet	
1877	Mashamoquet Brook	8/2/2007	110	dry	
1877	Mashamoquet Brook	8/7/2007	99	wet	
1877	Mashamoquet Brook	8/14/2007	20	wet	
1877	Mashamoquet Brook	8/21/2007	20	dry	
1877	Mashamoquet Brook	8/28/2007	10	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1877	Mashamoquet Brook	5/20/2008	10	dry	71
1877	Mashamoquet Brook	5/28/2008	87 [†]	wet	
1877	Mashamoquet Brook	6/3/2008	42	dry	
1877	Mashamoquet Brook	6/10/2008	99	dry	
1877	Mashamoquet Brook	6/17/2008	64	wet	
1877	Mashamoquet Brook	6/24/2008	87	wet	
1877	Mashamoquet Brook	7/1/2008	87	dry	
1877	Mashamoquet Brook	7/8/2008	160	dry	
1877	Mashamoquet Brook	7/15/2008	20	dry	
1877	Mashamoquet Brook	7/22/2008	10	wet	
1877	Mashamoquet Brook	7/29/2008	450	wet	
1877	Mashamoquet Brook	7/31/2008	220	dry	
1877	Mashamoquet Brook	8/5/2008	140	dry	
1877	Mashamoquet Brook	8/12/2008	75	wet	
1877	Mashamoquet Brook	8/19/2008	75	dry	
1877	Mashamoquet Brook	8/26/2008	99	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1877	Mashamoquet Brook	5/27/2009	42	wet	58
1877	Mashamoquet Brook	6/2/2009	20	dry	
1877	Mashamoquet Brook	6/9/2009	190	wet	
1877	Mashamoquet Brook	6/16/2009	20	wet	
1877	Mashamoquet Brook	6/23/2009	10	dry	
1877	Mashamoquet Brook	6/30/2009	10	wet	
1877	Mashamoquet Brook	7/8/2009	53	wet	
1877	Mashamoquet Brook	7/14/2009	110	dry	
1877	Mashamoquet Brook	7/21/2009	47 [†]	wet	
1877	Mashamoquet Brook	7/28/2009	43 [†]	dry	
1877	Mashamoquet Brook	8/4/2009	42	dry	
1877	Mashamoquet Brook	8/11/2009	140	dry	
1877	Mashamoquet Brook	8/18/2009	360	dry	
1877	Mashamoquet Brook	8/19/2009	85	dry	
1877	Mashamoquet Brook	8/25/2009	180	dry	
1877	Mashamoquet Brook	8/27/2009	64	dry	
1877	Mashamoquet Brook	9/1/2009	140	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1877	Mashamoquet Brook	5/26/2010	42	dry	104
1877	Mashamoquet Brook	5/27/2010	890	wet	
1877	Mashamoquet Brook	6/1/2010	1700	wet	
1877	Mashamoquet Brook	6/2/2010	220 [†]	wet	
1877	Mashamoquet Brook	6/8/2010	15 [†]	dry	
1877	Mashamoquet Brook	6/15/2010	20	dry	
1877	Mashamoquet Brook	6/22/2010	250	dry	
1877	Mashamoquet Brook	6/23/2010	360	wet	
1877	Mashamoquet Brook	6/24/2010	110	dry	
1877	Mashamoquet Brook	6/29/2010	10	dry	
1877	Mashamoquet Brook	7/7/2010	240	dry	
1877	Mashamoquet Brook	7/8/2010	110	dry	
1877	Mashamoquet Brook	7/13/2010	75	dry	
1877	Mashamoquet Brook	7/20/2010	108 [†]	dry	
1877	Mashamoquet Brook	7/27/2010	20	wet	
1877	Mashamoquet Brook	8/3/2010	10	dry	
1877	Mashamoquet Brook	8/10/2010	650	wet	
1877	Mashamoquet Brook	8/11/2010	74	dry	
1877	Mashamoquet Brook	8/17/2010	300	dry	
1877	Mashamoquet Brook	8/18/2010	64	dry	
1877	Mashamoquet Brook	8/24/2010	99	wet	
1877	Mashamoquet Brook	8/31/2010	133 [†]	dry	
1877	Mashamoquet Brook	5/26/2011	500	dry**	131
1877	Mashamoquet Brook	5/27/2011	190	dry**	
1877	Mashamoquet Brook	6/1/2011	53	dry**	
1877	Mashamoquet Brook	6/9/2011	890	wet**	
1877	Mashamoquet Brook	6/10/2011	480	wet**	
1877	Mashamoquet Brook	6/14/2011	42	wet**	
1877	Mashamoquet Brook	6/21/2011	10	dry**	
1877	Mashamoquet Brook	6/28/2011	150	dry**	
1877	Mashamoquet Brook	7/6/2011	87	wet**	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1878	Mashamoquet Brook	5/20/2003	20	dry	151
1878	Mashamoquet Brook	5/28/2003	270	wet	
1878	Mashamoquet Brook	6/3/2003	160	wet	
1878	Mashamoquet Brook	6/10/2003	64	dry	
1878	Mashamoquet Brook	6/17/2003	64	dry	
1878	Mashamoquet Brook	6/24/2003	110	wet	
1878	Mashamoquet Brook	7/1/2003	190	dry	
1878	Mashamoquet Brook	7/8/2003	210	dry	
1878	Mashamoquet Brook	7/9/2003	220	dry	
1878	Mashamoquet Brook	7/15/2003	140	dry	
1878	Mashamoquet Brook	7/22/2003	700	dry	
1878	Mashamoquet Brook	7/29/2003	190	dry	
1878	Mashamoquet Brook	8/5/2003	250	wet	
1878	Mashamoquet Brook	8/6/2003	120	wet	
1878	Mashamoquet Brook	8/12/2003	210	wet	
1878	Mashamoquet Brook	8/19/2003	360	dry	
1878	Mashamoquet Brook	8/26/2003	75	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1878	Mashamoquet Brook	5/25/2004	210	wet	202
1878	Mashamoquet Brook	6/2/2004	110	wet	
1878	Mashamoquet Brook	6/8/2004	220	dry	
1878	Mashamoquet Brook	6/15/2004	210	dry	
1878	Mashamoquet Brook	6/22/2004	120	dry	
1878	Mashamoquet Brook	6/29/2004	480	wet	
1878	Mashamoquet Brook	7/7/2004	210	wet	
1878	Mashamoquet Brook	7/13/2004	450	wet	
1878	Mashamoquet Brook	7/20/2004	140	dry	
1878	Mashamoquet Brook	7/27/2004	120	dry	
1878	Mashamoquet Brook	8/3/2004	380	wet	
1878	Mashamoquet Brook	8/4/2004	190	dry	
1878	Mashamoquet Brook	8/10/2004	75	dry	
1878	Mashamoquet Brook	8/17/2004	240	wet	
1878	Mashamoquet Brook	8/24/2004	190	dry	
1878	Mashamoquet Brook	8/31/2004	310	wet	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1878	Mashamoquet Brook	5/25/2005	360	wet	317* (60%)
1878	Mashamoquet Brook	6/1/2005	87	wet	
1878	Mashamoquet Brook	6/7/2005	190	dry	
1878	Mashamoquet Brook	6/14/2005	450	wet	
1878	Mashamoquet Brook	6/21/2005	150	dry	
1878	Mashamoquet Brook	6/28/2005	1700	dry	
1878	Mashamoquet Brook	7/6/2005	210	dry	
1878	Mashamoquet Brook	7/12/2005	310	dry	
1878	Mashamoquet Brook	7/13/2005	270	dry	
1878	Mashamoquet Brook	7/19/2005	340	dry	
1878	Mashamoquet Brook	7/26/2005	620	dry	
1878	Mashamoquet Brook	8/2/2005	87	dry	
1878	Mashamoquet Brook	8/9/2005	110	dry	
1878	Mashamoquet Brook	8/16/2005	360	wet	
1878	Mashamoquet Brook	8/23/2005	590	dry	
1878	Mashamoquet Brook	8/30/2005	2000	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1878	Mashamoquet Brook	5/24/2006	160	dry	174
1878	Mashamoquet Brook	5/31/2006	240	dry	
1878	Mashamoquet Brook	6/6/2006	110	wet	
1878	Mashamoquet Brook	6/13/2006	140	dry	
1878	Mashamoquet Brook	6/20/2006	150	dry	
1878	Mashamoquet Brook	6/21/2006	190	dry	
1878	Mashamoquet Brook	6/27/2006	87	wet	
1878	Mashamoquet Brook	7/6/2006	500	wet**	
1878	Mashamoquet Brook	7/8/2006	140	dry**	
1878	Mashamoquet Brook	7/11/2006	53	wet**	
1878	Mashamoquet Brook	7/19/2006	560	dry**	
1878	Mashamoquet Brook	7/21/2006	120	dry**	
1878	Mashamoquet Brook	7/25/2006	250	dry**	
1878	Mashamoquet Brook	7/26/2006	150	wet**	
1878	Mashamoquet Brook	8/1/2006	99	dry**	
1878	Mashamoquet Brook	8/8/2006	110	dry	
1878	Mashamoquet Brook	8/15/2006	890	wet	
1878	Mashamoquet Brook	8/22/2006	180	wet	
1878	Mashamoquet Brook	8/29/2006	150 [†]	wet	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1878	Mashamoquet Brook	5/22/2007	10	dry	172
1878	Mashamoquet Brook	5/30/2007	210	dry	
1878	Mashamoquet Brook	6/5/2007	740 [†]	wet	
1878	Mashamoquet Brook	6/12/2007	120	dry	
1878	Mashamoquet Brook	6/19/2007	190	dry	
1878	Mashamoquet Brook	6/21/2007	150	dry	
1878	Mashamoquet Brook	6/26/2007	270	dry	
1878	Mashamoquet Brook	6/28/2007	270	dry	
1878	Mashamoquet Brook	7/3/2007	87	dry	
1878	Mashamoquet Brook	7/10/2007	110	dry	
1878	Mashamoquet Brook	7/17/2007	220	dry	
1878	Mashamoquet Brook	7/24/2007	120	wet	
1878	Mashamoquet Brook	7/31/2007	890	wet	
1878	Mashamoquet Brook	8/2/2007	210	dry	
1878	Mashamoquet Brook	8/7/2007	137 [†]	wet	
1878	Mashamoquet Brook	8/14/2007	150	wet	
1878	Mashamoquet Brook	8/21/2007	220	dry	
1878	Mashamoquet Brook	8/28/2007	210	dry	
1878	Mashamoquet Brook	5/20/2008	53	dry	185
1878	Mashamoquet Brook	6/3/2008	110	dry	
1878	Mashamoquet Brook	6/10/2008	99	dry	
1878	Mashamoquet Brook	6/17/2008	1500	wet	
1878	Mashamoquet Brook	6/24/2008	120	wet	
1878	Mashamoquet Brook	7/1/2008	190	dry	
1878	Mashamoquet Brook	7/8/2008	150	dry	
1878	Mashamoquet Brook	7/15/2008	110	dry	
1878	Mashamoquet Brook	7/22/2008	170	wet	
1878	Mashamoquet Brook	7/29/2008	310	wet	
1878	Mashamoquet Brook	8/5/2008	99	dry	
1878	Mashamoquet Brook	8/12/2008	180	wet	
1878	Mashamoquet Brook	8/19/2008	190	dry	
1878	Mashamoquet Brook	8/26/2008	950	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1878	Mashamoquet Brook	5/27/2009	150	wet	205
1878	Mashamoquet Brook	6/2/2009	31	dry	
1878	Mashamoquet Brook	6/9/2009	830	wet	
1878	Mashamoquet Brook	6/16/2009	1700	wet	
1878	Mashamoquet Brook	6/23/2009	53	dry	
1878	Mashamoquet Brook	6/30/2009	220	wet	
1878	Mashamoquet Brook	7/8/2009	270	wet	
1878	Mashamoquet Brook	7/14/2009	87	dry	
1878	Mashamoquet Brook	7/21/2009	740	wet	
1878	Mashamoquet Brook	7/28/2009	64	dry	
1878	Mashamoquet Brook	8/4/2009	140	dry	
1878	Mashamoquet Brook	8/11/2009	160	dry	
1878	Mashamoquet Brook	8/18/2009	640	dry	
1878	Mashamoquet Brook	8/19/2009	250	dry	
1878	Mashamoquet Brook	8/25/2009	260 [†]	dry	
1878	Mashamoquet Brook	8/27/2009	120	dry	
1878	Mashamoquet Brook	9/1/2009	210	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1878	Mashamoquet Brook	5/26/2010	780	dry	222
1878	Mashamoquet Brook	5/27/2010	210	wet	
1878	Mashamoquet Brook	6/1/2010	99	wet	
1878	Mashamoquet Brook	6/2/2010	530	wet	
1878	Mashamoquet Brook	6/3/2010	200	wet	
1878	Mashamoquet Brook	6/8/2010	87	dry	
1878	Mashamoquet Brook	6/10/2010	190	wet	
1878	Mashamoquet Brook	6/15/2010	270	dry	
1878	Mashamoquet Brook	6/17/2010	150	dry	
1878	Mashamoquet Brook	6/22/2010	410	dry	
1878	Mashamoquet Brook	6/23/2010	2001* (88%)	wet	
1878	Mashamoquet Brook	6/24/2010	1191 [†]	dry	
1878	Mashamoquet Brook	6/29/2010	91 [†]	dry	
1878	Mashamoquet Brook	7/7/2010	64	dry	
1878	Mashamoquet Brook	7/8/2010	87 [†]	dry	
1878	Mashamoquet Brook	7/13/2010	270	dry	
1878	Mashamoquet Brook	7/15/2010	1600	dry	
1878	Mashamoquet Brook	7/20/2010	99	dry	
1878	Mashamoquet Brook	7/22/2010	190	dry	
1878	Mashamoquet Brook	7/27/2010	140	wet	
1878	Mashamoquet Brook	8/3/2010	42	dry	
1878	Mashamoquet Brook	8/10/2010	160	wet	
1878	Mashamoquet Brook	8/11/2010	110	dry	
1878	Mashamoquet Brook	8/17/2010	600	dry	
1878	Mashamoquet Brook	8/18/2010	180	dry	
1878	Mashamoquet Brook	8/24/2010	430	wet	
1878	Mashamoquet Brook	8/31/2010	99	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1878	Mashamoquet Brook	5/26/2011	110	dry**	184
1878	Mashamoquet Brook	5/27/2011	87	dry**	
1878	Mashamoquet Brook	6/1/2011	110 [†]	dry**	
1878	Mashamoquet Brook	6/7/2011	220	dry**	
1878	Mashamoquet Brook	6/9/2011	220	dry**	
1878	Mashamoquet Brook	6/10/2011	250	wet**	
1878	Mashamoquet Brook	6/14/2011	1400	wet**	
1878	Mashamoquet Brook	6/21/2011	75	wet**	
1878	Mashamoquet Brook	6/28/2011	210	dry**	
1878	Mashamoquet Brook	7/6/2011	160	dry**	
1876	Mashamoquet Brook	5/28/2003	53	wet	58
1876	Mashamoquet Brook	6/3/2003	64	wet	
1876	Mashamoquet Brook	6/10/2003	10	dry	
1876	Mashamoquet Brook	6/17/2003	20	dry	
1876	Mashamoquet Brook	6/24/2003	150	wet	
1876	Mashamoquet Brook	7/1/2003	110	dry	
1876	Mashamoquet Brook	7/8/2003	250	dry	
1876	Mashamoquet Brook	7/9/2003	150	dry	
1876	Mashamoquet Brook	7/15/2003	53	dry	
1876	Mashamoquet Brook	7/22/2003	31	dry	
1876	Mashamoquet Brook	7/29/2003	87	dry	
1876	Mashamoquet Brook	8/5/2003	410	wet	
1876	Mashamoquet Brook	8/6/2003	64	wet	
1876	Mashamoquet Brook	8/12/2003	10	wet	
1876	Mashamoquet Brook	8/19/2003	53	dry	
1876	Mashamoquet Brook	8/26/2003	20 [†]	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1876	Mashamoquet Brook	6/2/2004	10	wet	84
1876	Mashamoquet Brook	6/8/2004	53	dry	
1876	Mashamoquet Brook	6/15/2004	53	dry	
1876	Mashamoquet Brook	6/22/2004	120	dry	
1876	Mashamoquet Brook	6/29/2004	64	wet	
1876	Mashamoquet Brook	7/7/2004	120	wet	
1876	Mashamoquet Brook	7/13/2004	110	wet	
1876	Mashamoquet Brook	7/20/2004	20	dry	
1876	Mashamoquet Brook	7/27/2004	87	dry	
1876	Mashamoquet Brook	8/3/2004	250	wet	
1876	Mashamoquet Brook	8/4/2004	120	dry	
1876	Mashamoquet Brook	8/10/2004	120	dry	
1876	Mashamoquet Brook	8/17/2004	130 [†]	wet	
1876	Mashamoquet Brook	8/24/2004	150	dry	
1876	Mashamoquet Brook	8/31/2004	220	wet	
1876	Mashamoquet Brook	6/1/2005	10	wet	33
1876	Mashamoquet Brook	6/7/2005	140	dry	
1876	Mashamoquet Brook	6/14/2005	31	wet	
1876	Mashamoquet Brook	6/21/2005	10	dry	
1876	Mashamoquet Brook	6/28/2005	150	dry	
1876	Mashamoquet Brook	7/6/2005	53	dry	
1876	Mashamoquet Brook	7/12/2005	250	dry	
1876	Mashamoquet Brook	7/13/2005	31	dry	
1876	Mashamoquet Brook	7/19/2005	10	dry	
1876	Mashamoquet Brook	7/26/2005	150	dry	
1876	Mashamoquet Brook	8/2/2005	10	dry	
1876	Mashamoquet Brook	8/9/2005	20	dry	
1876	Mashamoquet Brook	8/16/2005	87	wet	
1876	Mashamoquet Brook	8/23/2005	10	dry	
1876	Mashamoquet Brook	8/30/2005	10	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1876	Mashamoquet Brook	5/31/2006	53	dry	71
1876	Mashamoquet Brook	6/6/2006	20	wet	
1876	Mashamoquet Brook	6/13/2006	31	dry	
1876	Mashamoquet Brook	6/20/2006	590	dry	
1876	Mashamoquet Brook	6/21/2006	150 [†]	dry	
1876	Mashamoquet Brook	6/27/2006	10	wet	
1876	Mashamoquet Brook	7/6/2006	64	wet**	
1876	Mashamoquet Brook	7/8/2006	190	dry**	
1876	Mashamoquet Brook	7/11/2006	87	wet**	
1876	Mashamoquet Brook	7/19/2006	340	dry**	
1876	Mashamoquet Brook	7/21/2006	20	dry**	
1876	Mashamoquet Brook	7/25/2006	310	dry**	
1876	Mashamoquet Brook	7/26/2006	71 [†]	wet**	
1876	Mashamoquet Brook	8/1/2006	42	dry**	
1876	Mashamoquet Brook	8/8/2006	10	dry	
1876	Mashamoquet Brook	8/15/2006	87	wet	
1876	Mashamoquet Brook	8/22/2006	190	wet	
1876	Mashamoquet Brook	8/29/2006	64	wet	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1876	Mashamoquet Brook	5/22/2007	53	dry	60
1876	Mashamoquet Brook	5/30/2007	120	dry	
1876	Mashamoquet Brook	6/5/2007	31	wet	
1876	Mashamoquet Brook	6/12/2007	140	dry	
1876	Mashamoquet Brook	6/19/2007	250	dry	
1876	Mashamoquet Brook	6/21/2007	110	dry	
1876	Mashamoquet Brook	6/26/2007	290	dry	
1876	Mashamoquet Brook	6/28/2007	92 [†]	dry	
1876	Mashamoquet Brook	7/3/2007	31	dry	
1876	Mashamoquet Brook	7/10/2007	20	dry	
1876	Mashamoquet Brook	7/17/2007	64	dry	
1876	Mashamoquet Brook	7/24/2007	10	wet	
1876	Mashamoquet Brook	7/31/2007	950	wet	
1876	Mashamoquet Brook	8/2/2007	140	dry	
1876	Mashamoquet Brook	8/7/2007	53	wet	
1876	Mashamoquet Brook	8/14/2007	20	wet	
1876	Mashamoquet Brook	8/21/2007	10	dry	
1876	Mashamoquet Brook	8/28/2007	10	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1876	Mashamoquet Brook	5/20/2008	10	dry	61
1876	Mashamoquet Brook	5/28/2008	87	wet	
1876	Mashamoquet Brook	6/3/2008	42	dry	
1876	Mashamoquet Brook	6/10/2008	110	dry	
1876	Mashamoquet Brook	6/17/2008	42	wet	
1876	Mashamoquet Brook	6/24/2008	10	wet	
1876	Mashamoquet Brook	7/1/2008	31	dry	
1876	Mashamoquet Brook	7/8/2008	135 [†]	dry	
1876	Mashamoquet Brook	7/15/2008	42	dry	
1876	Mashamoquet Brook	7/22/2008	10	wet	
1876	Mashamoquet Brook	7/29/2008	620	wet	
1876	Mashamoquet Brook	7/31/2008	210	dry	
1876	Mashamoquet Brook	8/5/2008	110	dry	
1876	Mashamoquet Brook	8/12/2008	31	wet	
1876	Mashamoquet Brook	8/19/2008	150	dry	
1876	Mashamoquet Brook	8/26/2008	180	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1876	Mashamoquet Brook	5/27/2009	150	wet	59
1876	Mashamoquet Brook	6/2/2009	20	dry	
1876	Mashamoquet Brook	6/9/2009	64	wet	
1876	Mashamoquet Brook	6/16/2009	10	wet	
1876	Mashamoquet Brook	6/23/2009	10 [†]	dry	
1876	Mashamoquet Brook	6/30/2009	31	wet	
1876	Mashamoquet Brook	7/8/2009	53	wet	
1876	Mashamoquet Brook	7/14/2009	110	dry	
1876	Mashamoquet Brook	7/21/2009	42	wet	
1876	Mashamoquet Brook	7/28/2009	53	dry	
1876	Mashamoquet Brook	8/4/2009	20	dry	
1876	Mashamoquet Brook	8/11/2009	140	dry	
1876	Mashamoquet Brook	8/18/2009	240	dry	
1876	Mashamoquet Brook	8/19/2009	86 [†]	dry	
1876	Mashamoquet Brook	8/25/2009	340	dry	
1876	Mashamoquet Brook	8/27/2009	87 [†]	dry	
1876	Mashamoquet Brook	9/1/2009	87	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1876	Mashamoquet Brook	5/26/2010	360	dry	110
1876	Mashamoquet Brook	5/27/2010	660	wet	
1876	Mashamoquet Brook	6/1/2010	410	wet	
1876	Mashamoquet Brook	6/2/2010	120	wet	
1876	Mashamoquet Brook	6/8/2010	31	dry	
1876	Mashamoquet Brook	6/15/2010	120	dry	
1876	Mashamoquet Brook	6/22/2010	340	dry	
1876	Mashamoquet Brook	6/23/2010	290	wet	
1876	Mashamoquet Brook	6/24/2010	150 [†]	dry	
1876	Mashamoquet Brook	6/29/2010	58 [†]	dry	
1876	Mashamoquet Brook	7/7/2010	160	dry	
1876	Mashamoquet Brook	7/8/2010	140	dry	
1876	Mashamoquet Brook	7/13/2010	53	dry	
1876	Mashamoquet Brook	7/20/2010	64	dry	
1876	Mashamoquet Brook	7/27/2010	10	wet	
1876	Mashamoquet Brook	8/3/2010	31	dry	
1876	Mashamoquet Brook	8/10/2010	15 [†]	wet	
1876	Mashamoquet Brook	8/11/2010	145 [†]	dry	
1876	Mashamoquet Brook	8/17/2010	230	dry	
1876	Mashamoquet Brook	8/18/2010	76 [†]	dry	
1876	Mashamoquet Brook	8/24/2010	110	wet	
1876	Mashamoquet Brook	8/31/2010	220	dry	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Mashamoquet Brook (CT3710-00_02) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Results	Wet/Dry	Geomean
1876	Mashamoquet Brook	5/24/2011	87	dry**	130
1876	Mashamoquet Brook	5/26/2011	360	dry**	
1876	Mashamoquet Brook	5/27/2011	260 [†]	dry**	
1876	Mashamoquet Brook	5/31/2011	10	dry**	
1876	Mashamoquet Brook	6/1/2011	87	wet**	
1876	Mashamoquet Brook	6/9/2011	660	dry**	
1876	Mashamoquet Brook	6/10/2011	410	wet**	
1876	Mashamoquet Brook	6/14/2011	42	wet**	
1876	Mashamoquet Brook	6/21/2011	48 [†]	wet**	
1876	Mashamoquet Brook	6/28/2011	220	dry**	
1876	Mashamoquet Brook	7/6/2011	210	dry**	
1164	Route 44 crossing in State Park	10/23/1998	210	dry	NA
1164	Route 44 crossing in State Park	4/20/1999	30	dry	12
1164	Route 44 crossing in State Park	11/17/1999	5	dry**	
1164	Route 44 crossing in State Park	11/7/2001	5	dry	NA
1165	50 meters downstream of small dam in State Park	4/23/2002	140	wet	124
1165	50 meters downstream of small dam in State Park	10/29/2002	110	dry	

Wet and dry weather geometric mean values for monitoring stations on Mashamoquet Brook (CT3710-00_02)

Station Name	Station Location	Years Sampled	Number of Samples		Geometric Mean		
			Wet	Dry	All	Wet	Dry
1165	50 meters downstream of small dam in State Park	2002	1	1	124	NA	NA
1164	Route 44 crossing in State Park	1998, 1999, 2001	0	4	20	NA	20
1878	Mashamoquet Brook	2003-2011	58	104	197	260	169
1876	Mashamoquet Brook	2003-2011	56	108	69	64	71
1877	Mashamoquet Brook	2003-2011	56	99	73	85	67
<p>Shaded cells indicate an exceedance of water quality criteria</p> <p>Weather condition determined from rain gauges at West Thompson Lake, Grosvenor Dale in Thompson, CT and at Hartford Bradley International Airport</p>							

BACTERIA DATA AND PERCENT REDUCTIONS TO MEET THE TMDL

Table 11: White Brook Bacteria Data

Waterbody ID: CT3710-18_01**Characteristics:** Freshwater, Class A, Habitat for Fish and other Aquatic Life and Wildlife, Recreation, Potential Drinking Water Supply, and Industrial and Agricultural Water Supply**Impairment:** Recreation (*E. coli* bacteria)**Water Quality Criteria for *E. coli*:**

Geometric Mean: 126 colonies/100 mL

Single Sample: 410 colonies/100 mL

Percent Reduction to meet TMDL:Geometric Mean: **76%**Single Sample: **96%****Data:** 2010-2011 from CT DEEP targeted sampling efforts, 2012 TMDL Cycle**Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on White Brook (CT3710-18_01) with annual geometric means calculated**

Station Name	Station Location	Date	Result	Wet/Dry	Geomean
6247	Downstream of Route 101	6/3/2010	200	wet	378
6247	Downstream of Route 101	6/10/2010	400	wet	
6247	Downstream of Route 101	6/17/2010	230	dry	
6247	Downstream of Route 101	6/24/2010	460	dry	
6247	Downstream of Route 101	6/29/2010	140	dry	
6247	Downstream of Route 101	7/8/2010	170	dry	
6247	Downstream of Route 101	7/15/2010	9800* (96%)	dry	
6247	Downstream of Route 101	7/22/2010	210	dry	
6247	Downstream of Route 101	6/2/2011	310	dry**	517* (76%)
6247	Downstream of Route 101	6/9/2011	1200	wet**	
6247	Downstream of Route 101	6/16/2011	290	dry**	
6247	Downstream of Route 101	6/23/2011	640 [†]	wet**	
6247	Downstream of Route 101	6/30/2011	290	dry**	
6247	Downstream of Route 101	7/7/2011	2100	dry**	
6247	Downstream of Route 101	7/14/2011	390	dry**	
6247	Downstream of Route 101	7/21/2011	310	dry**	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on White Brook (CT3710-18_01) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Result	Wet/Dry	Geomean
6318	At Searles Road Crossing at Town Line	6/2/2011	74	dry**	358
6318	At Searles Road Crossing at Town Line	6/9/2011	740	wet**	
6318	At Searles Road Crossing at Town Line	6/16/2011	110	dry**	
6318	At Searles Road Crossing at Town Line	6/23/2011	860	wet**	
6318	At Searles Road Crossing at Town Line	6/30/2011	220	dry**	
6318	At Searles Road Crossing at Town Line	7/7/2011	1500	dry**	
6318	At Searles Road Crossing at Town Line	7/14/2011	480	dry**	
6318	At Searles Road Crossing at Town Line	7/21/2011	330	dry**	
Shaded cells indicate an exceedance of water quality criteria					
† Average of two duplicate samples					
** Weather conditions for selected data taken from Hartford because local station had missing data					
*Indicates single sample and geometric mean values used to calculate the percent reduction					

Wet and dry weather geometric mean values for monitoring stations on White Brook (CT3718-00_01)

Station Name	Station Location	Years Sampled	Number of Samples		Geometric Mean		
			Wet	Dry	All	Wet	Dry
6247	Downstream of Route 101	2010-2011	4	12	442	498	425
6318	At Searles Road Crossing at Town Line	2011	2	6	358	798	274
Shaded cells indicate an exceedance of water quality criteria NA for Years Sampled indicates lack of precipitation data for all sampling years. Weather condition determined from rain gauges at West Thompson Lake, Grosvenor Dale in Windham, CT.							

BACTERIA DATA AND PERCENT REDUCTIONS TO MEET THE TMDL

Table 12: Sap Tree Run Bacteria Data

Waterbody ID: CT3710-13_01*Characteristics:* Freshwater, Class A, Habitat for Fish and other Aquatic Life and Wildlife, Recreation, Potential Drinking Water Supply, and Industrial and Agricultural Water Supply*Impairment:* Recreation (*E. coli* bacteria)*Water Quality Criteria for E. coli:*

Geometric Mean: 126 colonies/100 mL

Single Sample: 410 colonies/100 mL

*Percent Reduction to meet TMDL:*Geometric Mean: **59%**Single Sample: **94%***Data:* 2010-2011 from CT DEEP targeted sampling efforts, 2012 TMDL Cycle**Single sample *E. coli* (colonies/100 mL) data from monitoring station 5589 on Sap Tree Run (CT3710-13_01) with annual geometric means calculated**

Station Name	Station Location	Date	Result	Wet/Dry	Geomean
5589	25 meters downstream of Route 44	6/3/10	140	wet	306* (59%)
5589	25 meters downstream of Route 44	6/10/10	110	wet	
5589	25 meters downstream of Route 44	6/17/10	180	dry	
5589	25 meters downstream of Route 44	6/24/10	1300	dry	
5589	25 meters downstream of Route 44	6/29/10	260	dry	
5589	25 meters downstream of Route 44	7/8/10	74	dry	
5589	25 meters downstream of Route 44	7/15/10	6500* (94%)	dry	
5589	25 meters downstream of Route 44	7/22/10	170	dry	

Shaded cells indicate an exceedance of water quality criteria**† Average of two duplicate samples****** Weather conditions for selected data taken from Hartford because local station had missing data*****Indicates single sample and geometric mean values used to calculate the percent reduction**

Wet and dry weather geometric mean values for the monitoring station on Sap Tree Run (CT3718-13_01)

Station Name	Station Location	Years Sampled	Number of Samples		Geometric Mean		
			Wet	Dry	All	Wet	Dry
5589	25 meters downstream of Route 44	2010	2	6	306	124	413
Shaded cells indicate an exceedance of water quality criteria Weather condition determined from rain gauges at West Thompson Lake, Grosvenor Dale in Windham, CT.							

BACTERIA DATA AND PERCENT REDUCTIONS TO MEET THE TMDL

Table 13: Abington Brook Bacteria Data**Waterbody ID:** CT3710-11_01**Characteristics:** Freshwater, Class A, Habitat for Fish and other Aquatic Life and Wildlife, Recreation, Potential Drinking Water Supply, and Industrial and Agricultural Water Supply**Impairment:** Recreation (*E. coli* bacteria)**Water Quality Criteria for *E. coli*:**

Geometric Mean: 126 colonies/100 mL

Single Sample: 410 colonies/100 mL

Percent Reduction to meet TMDL:

Geometric Mean: 72%

Single Sample: 84%

Data: 2010-2011 from CT DEEP targeted sampling efforts, 2012 TMDL Cycle**Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Abington Brook (CT3710-11_01) with annual geometric means calculated**

Station Name	Station Location	Date	Result	Wet/Dry	Geomean
6323	Route 44 at Abington Cemetery	6/2/2011	41	dry**	81
6323	Route 44 at Abington Cemetery	6/9/2011	10	wet**	
6323	Route 44 at Abington Cemetery	6/16/2011	190 [†]	dry**	
6323	Route 44 at Abington Cemetery	6/23/2011	250	wet**	
6323	Route 44 at Abington Cemetery	6/30/2011	240	dry**	
6323	Route 44 at Abington Cemetery	7/7/2011	30	dry**	
6323	Route 44 at Abington Cemetery	7/14/2011	420	dry**	
6323	Route 44 at Abington Cemetery	7/21/2011	30	dry**	
6251	Route 44 at end of Krazy Road	6/10/2000	300	dry	NA

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Abington Brook (CT3710-11_01) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Result	Wet/Dry	Geomean
6251	Route 44 at end of Krazy Road	6/3/2010	190	wet	443* (72%)
6251	Route 44 at end of Krazy Road	6/17/2010	200	dry	
6251	Route 44 at end of Krazy Road	6/24/2010	1000	dry	
6251	Route 44 at end of Krazy Road	6/29/2010	610	dry	
6251	Route 44 at end of Krazy Road	7/8/2010	730	dry	
6251	Route 44 at end of Krazy Road	7/15/2010	2600* (84%)	dry	
6251	Route 44 at end of Krazy Road	7/22/2010	810	dry	
6251	Route 44 at end of Krazy Road	7/29/2010	1600	wet	
6251	Route 44 at end of Krazy Road	8/5/2010	400	wet	
6251	Route 44 at end of Krazy Road	8/12/2010	300	dry	
6251	Route 44 at end of Krazy Road	8/19/2010	620	dry	
6251	Route 44 at end of Krazy Road	8/26/2010	200	dry	
6251	Route 44 at end of Krazy Road	9/2/2010	190	dry	
6251	Route 44 at end of Krazy Road	9/8/2010	170	wet	
6251	Route 44 at end of Krazy Road	9/15/2010	180	dry	
6251	Route 44 at end of Krazy Road	6/2/2011	160 [†]	dry**	302
6251	Route 44 at end of Krazy Road	6/9/2011	1100	wet**	
6251	Route 44 at end of Krazy Road	6/16/2011	110	dry**	
6251	Route 44 at end of Krazy Road	6/23/2011	460	wet**	
6251	Route 44 at end of Krazy Road	6/30/2011	165 [†]	dry**	
6251	Route 44 at end of Krazy Road	7/7/2011	800	dry**	
6251	Route 44 at end of Krazy Road	7/14/2011	160	dry**	
6251	Route 44 at end of Krazy Road	7/21/2011	370	dry**	
6321	Route 97	6/2/2011	210	dry**	249
6321	Route 97	6/9/2011	1045 [†]	wet**	
6321	Route 97	6/16/2011	110	dry**	
6321	Route 97	6/23/2011	160	wet**	
6321	Route 97	6/30/2011	230	dry**	
6321	Route 97	7/7/2011	460	dry**	
6321	Route 97	7/14/2011	140	dry**	
6321	Route 97	7/21/2011	260	dry**	

Single sample *E. coli* (colonies/100 mL) data from all monitoring stations on Abington Brook (CT3710-11_01) with annual geometric means calculated (continued)

Station Name	Station Location	Date	Result	Wet/Dry	Geomean
6253	Route 44 at Abington Cemetery	7/29/2010	1000	wet	304
6253	Route 44 at Abington Cemetery	8/5/2010	380	wet	
6253	Route 44 at Abington Cemetery	8/12/2010	140	dry	
6253	Route 44 at Abington Cemetery	8/19/2010	190	dry	
6253	Route 44 at Abington Cemetery	8/26/2010	200	dry	
6253	Route 44 at Abington Cemetery	9/2/2010	120	dry	
6253	Route 44 at Abington Cemetery	9/8/2010	320	wet	
6253	Route 44 at Abington Cemetery	9/15/2010	950	dry	

Shaded cells indicate an exceedance of water quality criteria

† Average of two duplicate samples

** Weather conditions for selected data taken from Hartford because local station had missing data

*Indicates single sample and geometric mean values used to calculate the percent reduction

Wet and dry weather geometric mean values for the monitoring station on Abington Brook (CT3718-11_01)

Station Name	Station Location	Years Sampled	Number of Samples		Geometric Mean		
			Wet	Dry	All	Wet	Dry
6323	Route 44 at Abington Cemetery	2011	2	6	81	50	94
6251	Route 44 at end of Krazy Road	2000, 2010, 2011	6	18	384	468	359
6321	Route 97	2011	2	6	249	409	211
6253	Route 44 at Abington Cemetery	2010	3	5	304	495	227

Shaded cells indicate an exceedance of water quality criteria

NA for Years Sampled indicates lack of precipitation data for all sampling years.

Weather condition determined from rain gauges at West Thompson Lake, Grosvenor Dale in Windham, CT.

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